PACKAGE engineering

Combining machinery operations

A feat of engineering and equipment development provides just one machine to perform nine separate operations — and with fewer attendants, less space, and higher speed than otherwise possible. (See page 21)

Adhesives for flexible packaging

Taking an intensive and yet panoramic view of adhesives for flexible materials used for bags, carton windows, aluminum foil, skin packaging, and various laminations — including tests and their resulting data. (See page 26)

How good is a packaging committee?

An inside view of just how one such committee works — who is on it, what they discuss, how they follow up on projects, and what sort of records and reports there are, and who receives them. (See page 44)

Complete table of contents on Page 2

AUGUST 1957

VOLUME 2 • NUMBER 8

Stamped and Wrapped

by SCANDIA

HARD-BOX PACKS FOR THE CIGARETTE INDUSTRY

SCANDIA

Manufacturers of Better Packaging Machinery

• 500 BELLEVILLE TURNPIKE • NORTH ARLINGTON, N. J. •

BUNDLING • BANDING • MULTIPLE WRAPPING • STAMPING • HIGH SPEED WRAPPING

For more information circle No. 201 on Reader Service Card

How to keep the ZEST in yeast

Big as life, on the package you see these words: **"Active"** and **"Dry."**

And clue they are to the problems involved in safeguarding the zest of fine dry yeast like famous Fleischmann's until it goes into delicious dishes.

Fleischmann's has found that PLIOFILM halts those "leakers"—packages which lose their "dryness" and get "active" before they are meant to!

Hence the bright, new "Triple-Fresh" Pack by Standard Brands which features PLIOFILM right next to the thirsty product so the inert nitrogen stays *in* and life-robbing oxygen stays *out*.

It isn't the first time PLIOFILM has licked a tough problem. You see, this rugged film readily laminates to virtually anything (in this case, to foil), heat-seals with a welded bond as tough as the material itself, is extremely moisture- and puncture-resistant.

Fact: No other transparent film is as effective for lamination as PLIOFILM, is so free of "pinholes," so grease-resistant, *so low in cost*.

Question: Why not check into PLIOFILM for packaging your dry yeast, hard candy, soup mixes, milk powders, pharmaceuticals, instant coffee, fresh or frozen meats? Get the full facts from the Goodyear Packaging Engineer, Goodyear, Packaging Films Dept. H-6432, Akron 16, Ohio.

GOOD THINGS ARE BETTER IN

Pliofilm

GOODYEAR PACKAGING FILM

Pliofilm, a rubber hydrochloride—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

For your calendar

July 15-19. American Management Association packaging clinic on the management of the packaging operations, Colgate University, Hamilton, New York. Contact: John A. Warren, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

August 12-16. American Management Association packaging clinic on cost reduction in an industrial packaging program, Colgate University, Hamilton, New York. Contact: John A. Warren, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

October 1-3. Third Joint Military-Industry Packaging and Materials Handling symposium, Fort Lee, Virginia. Contact: Procurement Division, Deputy Chief of Staff for Logistics, Department of the Army, Washington 25, D. C.

October 3-4. Quartermaster Association 10th annual national convention, Fairmont Hotel, San Francisco, Contact: The Secretary, P. O. Box 105, Presidio of San Francisco, California.

October 28-30. Packaging Institute, 19th annual forum, Hotel Statler, New York. Contact: Charles A. Feld, executive director, Packaging Institute, 342 Madison Avenue, New York 17, New York. *Telephone: Murray Hill 7-8875.*

October 28-31. Society of Industrial Packaging and Materials Handling Engineers, 12th national industrial packaging and handling exposition and SIPMHE short course, Atlantic City Auditorium, Atlantic City, New Jersey. Contact: C. J. Carney Jr., managing director, Society of Industrial Packaging and Materials Handling Engineers, 111 West Jackson Blvd., Chicago 4, Illinois. *Telephone: Harrison 7-6123.*

AUGUST 1957 • VOLUME 2 • NUMBER 8

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

Articles

21 Making one machine perform nine operations, by Edward W. Love, head, machinery research and development, Bristol-Myers Products Division, Bristol-Myers Company
A thorough examination of a remarkable project that permits using one unit to perform nine separate operations at a speed of 120 pieces a minute and using just two operators — clearly indicative of the trend towards combining operations and using less floor space than ever before.

26 Evaluation and testing of adhesives for transparent films, by Albert S. Taylor, technical specialist, film department, sales development and technical service, E. I. du Pont de Nemours & Co., Inc.
A close look at adhesives for a variety of flexible packaging operations including bags, carton windows, aluminum foil, skin packaging, and various laminations — accompanied by details of tests and results obtained with them.

32 Detecting and eliminating metallic particles in packaged foods, by Robert C. Mounsey, plant engineer, Birds Eye Division, General Foods Corporation
A practical approach to the problem of detecting "tramp" metal, with special emphasis on equipment and methods to do the job as simply and as inexpensively as possible — as well as with operational certainty of detection.

36 Production line handling and filling of powdery products
Development of specialized techniques and practical shortcuts give Horlicks Corporation direct product delivery, mechanized filling, centralized control of packaging, and the avoidance of breakage or spilling during the handling of a powdery hygroscopic product.

44 Making a packaging committee an effective management tool
A definitive examination of the packaging committee at Gerber Products Company with special emphasis on how it works, when and why it meets, how its members follow through assignments and prepare for subsequent meetings — and how a small committee shares information with other company executives.

Departments

4 A note from the publisher

50 Announcements of machinery and products

54 Industry literature available free

57 Classified advertising

58 What we think (our editorial page)

Reader service card inside back cover

Our December 1957 issue will carry a cumulative editorial index for the year listing our feature articles by subject, author, and other headings.

Packaging is more than "Skin Deep"!

Packaging Problem:

The Williamson Candy Company of Chicago, Illinois was faced with a serious packaging problem. Their "Oh Henry" candy bar was using a wrapper that required an adhesive seal. Transfer of the adhesive not only caused the bars to stick together in shipping cartons, but, in vending machines, the bars were coming unwrapped and vending machine operators were registering complaints.

In addition, the natural shape of the "Oh Henry" bar had a tendency to cause the adhesive to smear on the elevators and carriers of wrapping machines resulting in costly slow-downs and rejections.

Solution:

Western-Waxide's research scientists and food technologists, after a thorough study of the problem, developed the first heat sealed wrapper of this type for a chocolate candy bar. Heat sealing solved the adhesive problem . . . but, the wrapper had to be heat sealable at low temperatures and high speeds. Otherwise, the chocolate would melt.

They developed a special wrap of 8 lb. tissue laminated with special wax formula No. 1577LM to 25 lb. glassine. This wrap provided a positive fold, with no "spring back". The special wax formula provided lower moisture-vapor transfer, was heat sealable at a low temperature, yet could be wrapped and sealed on a Lynch Wrap-O-Matic machine at the rate of over 100 per minute. To add extra high gloss to the brown, yellow and red printed wrapper, the surface was over-coated with clear lacquer.

●

Western-Waxide package research and development turns problems *into* profits *for* you! *These services of our packaging research and development laboratories and personnel are available to solve your packaging problems. Write or phone your nearest Western-Waxide office today.*

Increased Sales
... by Design!

CROWN ZELLERBACH CORPORATION

WESTERN-WAXIDE SPECIALTY PACKAGING DIVISION

PLANTS AND SALES OFFICES: SAN LEANDRO AND LOS ANGELES, CALIFORNIA • NORTH PORTLAND, OREGON • ST LOUIS AND KANSAS CITY, MISSOURI
SALES SERVICE OFFICES: Akron • Atlanta • Chicago • Cincinnati • Dallas • Denver • Memphis • New York City • Omaha • Salt Lake City • Seattle • Spokane

A note from the Publisher

For a good many years the aluminum can has been in fairly common use in Europe. In Norway over 40 million aluminum cans are used annually to pack certain vegetables, fish and meat.

While aluminum cans are not unheard of in the United States, they certainly are not in common use. Phillip C. Althen, of the Aluminum Company of America, tells me that as far back as 1929 at least one tuna pack was made in aluminum cans and that one Western brewer has been packing in aluminum cans.

However two items that have appeared in the press recently may indicate that the day of the aluminum can as a commonly used packaging medium may be just around the corner.

The April issue of Modern Metals magazine carried an article describing a fully automatic aluminum can manufacturing operation in Germany.

The second item appeared recently in the Journal of Commerce, reporting that Kaiser Aluminum had taken an order for four and one-half million aluminum cans.

One of the drawbacks to aluminum cans, and there are several, has been that traditional can fabricating methods just do not work with aluminum. The German plant departs from tin can manufacturing methods and forms aluminum cans by impact extrusion — the same method used by the brewer mentioned earlier. The German line is readily adjustable for different can sizes, and then ties the whole operation together so that slugs go in one end and completely fabricated decorated cans come out the other. With relatively small runs and variations in sizes, the labor cost has been high and a fully automatic line, of course, would do much to bring the cost down.

With about 50% of the cost of the can in the material, it is improbable that aluminum cans could be competitively priced with tin cans — as they are in Europe — even with fully automatic lines.

However, a fully automatic, readily adjustable line will bring labor costs down — and with the price of steel steadily rising and the price of aluminum dropping, aluminum cans could become quite competitive. Furthermore, cost doesn't seem to have bothered the aluminum industry in the packaging field, where they have done a tremendous job of selling foil as a packaging medium and made its functional properties justify its higher cost.

In 1956 world tin plate consumption was over seven million tons, which is double aluminum production — so I hesitate to think that aluminum will take a sizable slice of the market immediately.

However, at least one aluminum company is now making aluminum cans and the major can companies have been doing experimental work along this line.

Initially these cans would probably go into specialty products where aluminum would be desirable for some of its functional properties. It is a development worth watching.

Angus J. Ray
Publisher

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

Angus J. Ray
Publisher

R. Bruce Holmgren
Editor

Elizabeth L. Meyer
Assistant Editor

Laurence V. Burton
Consulting Editor

Irwin F. Megargee
Eastern Manager

Anne Bernhard
Business Manager

Burton Cherry
Art Director

Executive and editorial offices:
1791 West Howard Street,
Chicago 26, Illinois
Telephone: Briargate 4-7837

Eastern advertising Sales office:
P. O. Box 270
Ocean City, New Jersey
Telephone: Ocean City 3519

West Coast representative:
The Robert W. Walker Company,
730 South Western Avenue
Los Angeles 5, California
Telephone: Dunkirk 7-4388

57 Post Street,
San Francisco 4, California
Telephone: Sutter 1-5568

Packaging Engineering is published monthly by Angus J. Ray Publishing Co., 1791 West Howard Street, Chicago 26, Illinois. Angus J. Ray, president; R. B. Holmgren and I. F. Megargee, vice presidents; James G. Culbertson, secretary and Ethyl K. Ray, treasurer. Please address articles for publication and correspondence regarding the editorial content to the editor. Statements and opinions expressed in articles and editorials are those of the respective authors, for which Package Engineering assumes no responsibility.

Copyright 1957 by Angus J. Ray Publishing Company.

Accepted as controlled circulation publication at Aurora, Illinois.

Package Engineering is circulated without charge to engineering, research, development, production and purchasing personnel concerned with packaging in all companies packaging their products for marketing or shipment. Qualified recipients thus are engineering and technical personnel concerned with package research and development, packaging production and package purchasing, within the United States, to all others, the subscription price is $10.00 a year.

Member of Business Publication Audit of Circulations, Inc.

BPA

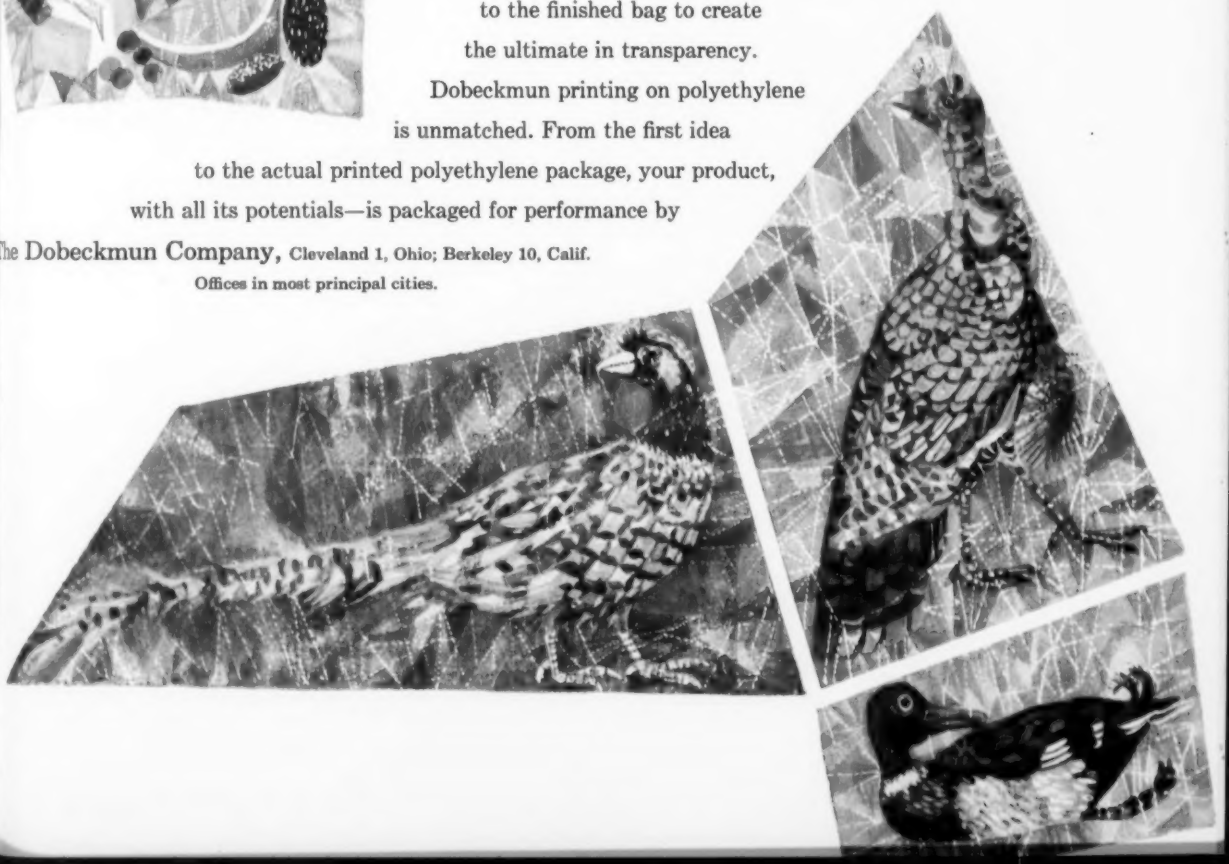
For more information circle No. 204 on Card →

Most customers of the Maine Potato Bag Company insist on Dobeckmun polyethylene. H. N. Aldrich, Sales Manager, says: "None can compare with Dobeckmun. Most of all we like the printing and the quality of Dobeckmun's polyethylene bag."

Packages for performance...

Dobeckmun polyethylene wraps up a performance every time. This versatile, practical packaging film sells to the eye . . . promotes . . . protects. For teddy-bears and tablecloths, bonbons, bedspreads and poultry, too, its high gloss presents your product at its best, adds lustre to your brand name and selling message. Dobeckmun polyethylene is rigidly controlled from the basic resin to the finished bag to create the ultimate in transparency. Dobeckmun printing on polyethylene is unmatched. From the first idea to the actual printed polyethylene package, your product, with all its potentials—is packaged for performance by

The Dobeckmun Company, Cleveland 1, Ohio; Berkeley 10, Calif.
Offices in most principal cities.



On the go . . . wherever you go . . . attractive fold-up metal tubes by Wirz make travelling light *and* easy. Keep products fresh between trips, too . . . right down to the last squeeze. Let a Wirz tube specialist show you how you can keep *your* product on the go . . . wherever your customers go.

PROTECTION • CONVENIENCE • SALES APPEAL COME IN TUBES BY *A. H.* **WIRZ** *Inc.*

RIGID CANS AND IMPACT EXTRUSIONS BY AMERICAN EXTRUSION CORPORATION, DIVISION OF A. H. WIRZ, INC.

4TH & IRWIN STS., CHESTER, PA.

ALSO CARROLLTON, KY.

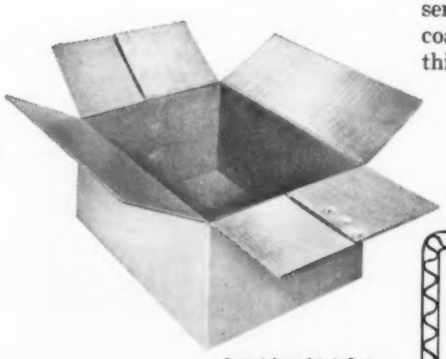
NEW YORK • CHICAGO • LOS ANGELES • MEMPHIS • HAVANA

Now! Protection without liners!

The secret—A-C Polyethylene: Articles arrive in "factory-fresh" condition without sales destroying surface scratches or blemishes.

What A-C Polyethylene does: The A-C POLYETHYLENE-wax blend coat holds scratchy paper fibers down. Carton producers apply A-C POLYETHYLENE blends as easily as wax but it gives a far glossier, much stronger coating than wax alone. There are savings all down the packaging line—in material costs, handling, and storage.

Ask about A-C coating from your supplier: He can furnish your cartons and spacers with A-C POLYETHYLENE blend coatings . . . eliminating your need for liners, reducing your costs, and giving your merchandise sure protection. If you wish, we can send you more information on the new A-C POLYETHYLENE-coated cartons or the name of your nearest converter supplying this new type premium shipping container in your area.



Coated Snap-Stitch Carton
Courtesy Victory Container Corp.

For more information, mail this coupon now . . .

A-C® Polyethylene

SEMET-SOLVAY PETROCHEMICAL DIVISION
Allied Chemical & Dye Corporation
Dept. 520-V, 40 Rector Street
New York 6, New York

Allied Chemical

Tell me more about new coated corrugated cartons.

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

For more information circle No. 206 on Reader Service Card

New polyester film takes heat-seal!

Now you can have all the advantages of packaging in tough polyester film – *plus* heat sealing – with "SCOTCHPAK."

This remarkable polyester film takes a seal as tough as the film itself – and easily: A temperature of 275° to 375°F. and 20-60 psi is all that's required.

"SCOTCHPAK" Brand Heat-Sealable Polyester Film gives you a packaging material with a high degree of inertness and resistance to extreme temperature conditions. It also protects against solvents, chemicals and moisture – yet has high tensile strength.

Here is a versatile packaging film. Manufacturers of such varied products as cosmetics, acids, syrups, silverware, oils, greases, adhesives, asphaltics, catsup, mustard and surgical dressing will find it ideal. It can even be used as a container liner or insulation pillow.

For complete information, write for folder described at right.

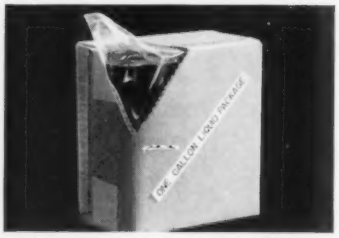
TRADEMARK

"SCOTCHPAK"

BRAND

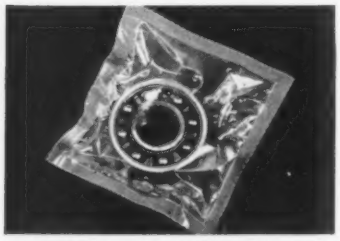
HEAT-SEALABLE POLYESTER FILM

Look what you can do with it!



LIQUIDS, semi-solids, and solids can be packaged easily, handled safely, shipped without fear in heat-sealable containers of new "SCOTCHPAK" Polyester Film.

FOOD ITEMS are packaged safely in clear-as-glass "Scotchpak" Film. Contents can be frozen . . . even boiled *right in the package*. Low gas penetration rate . . . inert and non-toxic.



METAL PARTS can be packaged dry or in oil or grease to protect them against corrosion. Transparent packages are easy to handle, easy to ship and to store. Simplifies issuing of parts and units.

FREE FOLDER shows dozens of ways you can solve your most difficult packaging and shipping problems with new "Scotchpak" Polyester Film. Just write on your letterhead: Film Products Group, 3M Co., St. Paul 6, Minn., Dept. LY-87

The term "SCOTCHPAK" is a trademark of Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. Export Sales Office: 99 Park Ave., New York 16, N. Y. In Canada: P.O. Box 757, London, Ontario. © 3M Co., 1957.

PRODUCT OF 3M COMPANY RESEARCH

When you **can** *color...*

can with CROWN

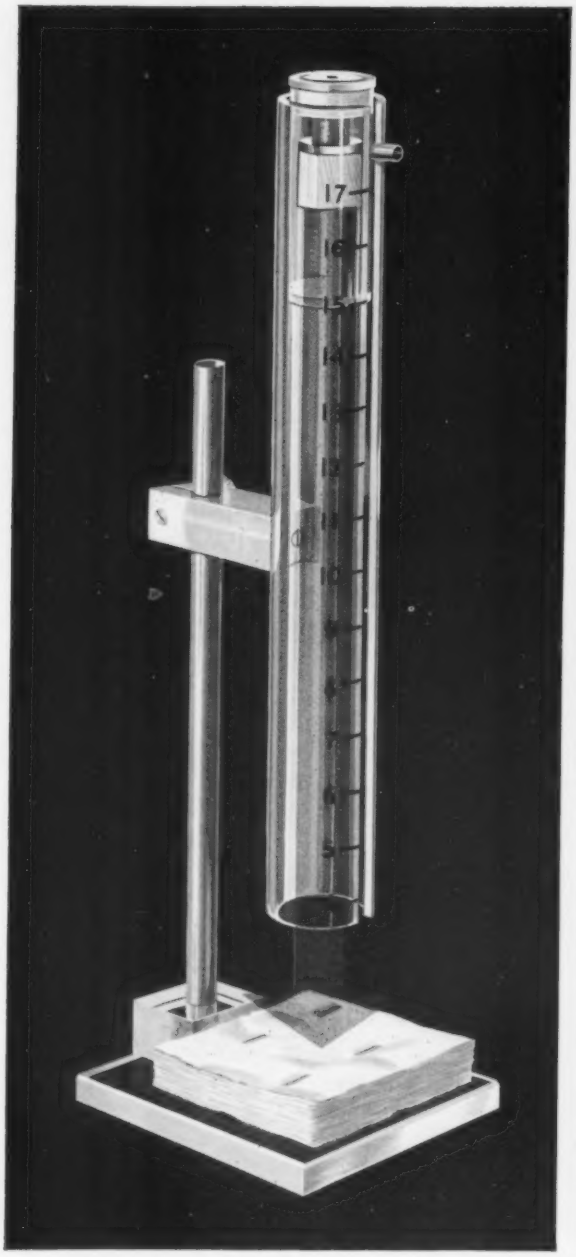
Any kind of paint product—for any purpose—in any size kit or can . . . *can* with CROWN.

CROWN manufactures quality containers in many styles and sizes . . . delivers them where you want them . . . when you want them. CROWN also offers complete package design and merchandising assistance . . . modern lithography equipment and techniques . . . and experienced research and engineering service . . . all with that *extra* touch of CROWN personal attention. Plants and offices in 18 strategic locations.

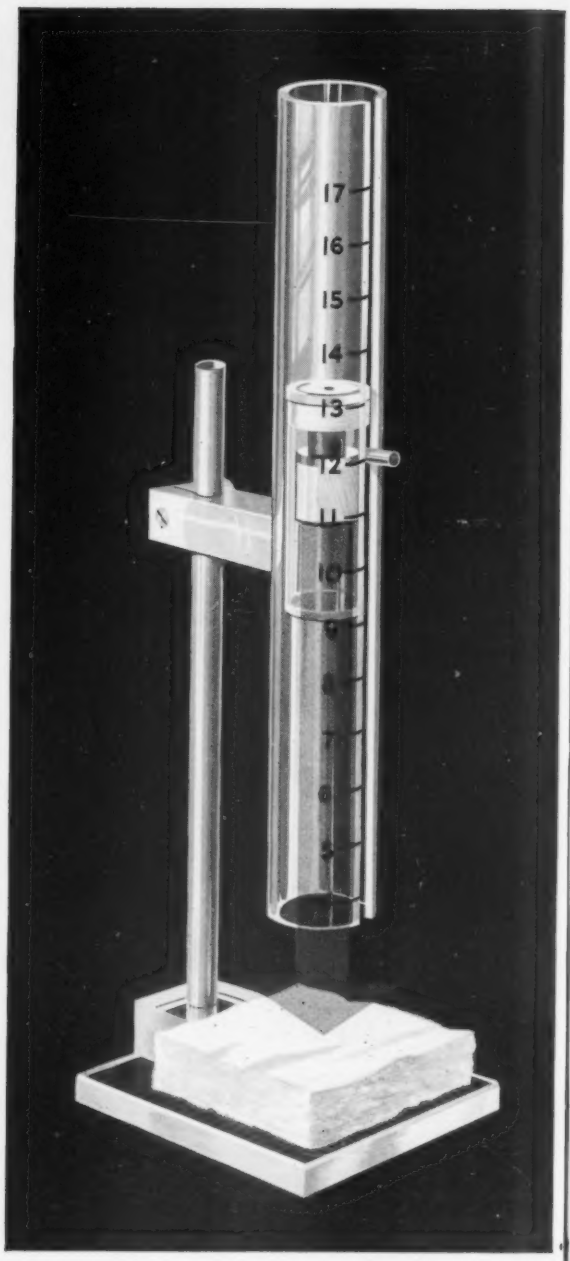
Write for your copy of CROWN's "Container Catalog". Crown Cork & Seal Company, Inc., Can Division, 9390 Ashton Road, Philadelphia 36, Pa.

whatever you can . . . call on **CROWN**

CROWN CORK & SEAL COMPANY, INC.
MANUFACTURERS OF CLOSURES, CONTAINERS AND MACHINERY



Kimpak can absorb the shock of a capsule dropped from a height of 15 inches without separation of the magnet and metal disk.



With another cushioning material of the same weight as Kimpak, 9.2 inches is highest capsule can be dropped without separating magnet and metal disk.

How test is made

For the "Shock Comparison Test" a small iron disk is held by a magnet. Both are contained within a transparent capsule. The capsule is dropped in a lucite tube onto a pad of cushioning material. The highest point from which the drop can be made without the magnet losing its hold on the metal disk is a direct measure of the shock absorbency of the cushioning material.

more shock absorption with

KIMPAK

INTERIOR PACKAGING

How much cushion protection can you expect from an interior packaging material? You can't tell too well from its apparent thickness. Most important is its *effective thickness*—or the *working thickness under load.*

The "Shock Comparison Test" was developed by the U. S. Forest Products Laboratory, Madison, Wisconsin, to compare the shock absorbency of cushioning materials under laboratory conditions. Pictured here is the instrument used in the test.

In the pictures of this test at left, the superior shock absorbing qualities of Kimpak are clearly demonstrated. The other cushioning material with *more apparent thickness* than Kimpak can absorb only about ⅔ as much shock.

This is because the specified thickness of Kimpak is all *effective thickness.* Kimpak is engineered to give you more working thickness than other cushioning materials of the same weight and cost . . . and consequently more shock absorption.

Kimpak in rolls or sheets cut to size is distributed in all major cities. Call your distributor or Kimberly-Clark for a packaging engineer to show this and other modern laboratory tests with Kimpak *right at your desk.* He will help you with your packaging problems, too.

FREE

Measure the effective thickness of cushioning materials under the standard 3½ pound per square foot load prescribed by Federal Specification.

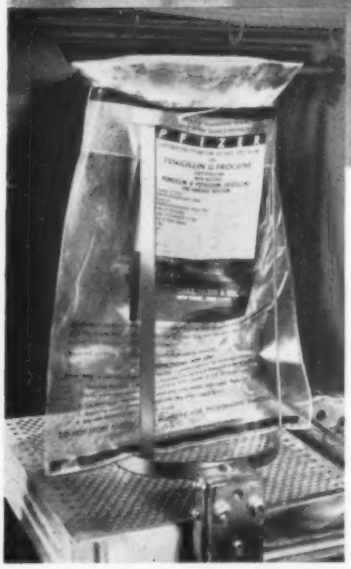
Kimberly-Clark offers this Standard Weight, precision made of sturdy aluminum, *free* to all packaging engineers and cushioning buyers. Just ask the Kimpak salesman who calls on you. Or write to Kimberly-Clark, Dept. E-87, Neenah, Wisconsin.

Kimberly-Clark
INTERIOR PACKAGING
KIMPAK

Kimpak is a trademark of
Kimberly-Clark Corporation, Neenah, Wisconsin

four important advantages of

new polyethylene packaging for PFIZER antibiotics



The package consists of two polyethylene bags, one inside the other. The inside bag and the interior surface of the outer bag are completely sterile.

The use of film made of BAKELITE Brand Polyethylene, recently adopted by Chas. Pfizer & Co., Inc., Brooklyn, N.Y., for bulk packaging of sterile antibiotics, has resulted in four major benefits:

1. Easier aseptic handling by customer in manufacturing procedures.
2. Elimination of shatterable containers.
3. Less storage—new packaging occupies ⅙ the space formerly required.
4. Less freight—customers save as much as 75% in charges.

The strength and chemical inertness of film made of BAKELITE Polyethylene provide similar benefits for packaging a wide range of chemicals and corrosives. Ask your packaging supplier to show you various forms of polyethylene packaging. Or write Dept. XB-157.

IT PAYS TO PACKAGE IN FILM MADE OF

BAKELITE
BRAND
POLYETHYLENE

UNION CARBIDE

BAKELITE COMPANY, *Division of Union Carbide Corporation* UCC 30 East 42nd Street, New York 17, N.Y.

The terms BAKELITE and UNION CARBIDE are registered trade-marks of UCC.

This is a CROSSETT BLEACHED BOARD Customer

Look at him — corked off as soon as his head hit the pillow. No more haunting worries for him about what happens to his board supply when the market gets tight.

His supply of board is as sure as if he owned the mill—which in a sense he does. The day he established his board needs with Crossett, he took title to bi-monthly machine time that became his property for as long as he wants it.

Because ours is an independent mill, we are in complete control of where every pound of our output will go. Since we have no relatives, we sell it to whomever we like. We like regular customers.

CROSSETT PAPER MILLS
A DIVISION OF THE CROSSETT COMPANY

GENERAL SALES OFFICE
CROSSETT, ARKANSAS

BALTIMORE OFFICE
J. W. Taylor, Don Hodge
414 St. Paul St.

DALLAS OFFICE
H. E. Manner
3409 Oaklawn Ave.

CHICAGO OFFICE
L. J. Walker, D. W. Schwier
300 West Washington

CINCINNATI OFFICE
R. J. Lantry, J. T. Allen
3732 Lovell Avenue

For more information circle No. 211 on Reader Service Card

Environmental TEST EQUIPMENT WITH UNAPPROACHED CONSTANCY

SUB-ZERO CABINETS

Range: from minus 100° F to plus 200° F.
Accuracy: as low as ½° F at minus 100° F.

Test cabinet cooled by dry ice . . . highly accurate, yet less expensive than mechanically refrigerated cabinets.

A two-piece hinged cover permits access to either the dry-ice chamber or the work chamber.

TWO SIZES AVAILABLE

Cat. No. 5-3352—24x24x24" chamber **$832.00**
Cat. No. 5-3256—18x16x20" chamber **$790.00**

STEAM HUMIDIFIED CABINET

Range: From ambient to 95% R. H., and temperatures up to 180° F.
Accurate Control: ± ¼° F., and as low as ± ⅓% R. H. at low ranges.

Produces and closely maintains desired relative humidity through use of an Aminco "Lo-lag" heater, an electric steam generator, and a circulating blower.

Controls *both* wet and dry-bulb temperatures. Inner glass cover permits inspection of contents without disturbing test conditions.

Cat. No. 5-3724—26x26x26" chamber **$1131.00**
Cat. No. 5-3725—52x26x26" chamber **$1533.00**

AMINCO-AIRE

A source of conditioned air precisely controlled—constant within ±¾° F. and ± ½% R. H.

Produces and maintains a wide range of controlled temperatures and relative humidities.

May be used in conjunction with various test cabinets or conditioning rooms of 20-cu. ft. or more to supply a constant flow of accurately controlled, pre-conditioned air.

Simple and convenient to operate and control. 208-V, or 230-V; single or 3-phase models available.

Cat. No. 5-5475—230-V, 60-C, a-c. 1-ph. **$2415.00**

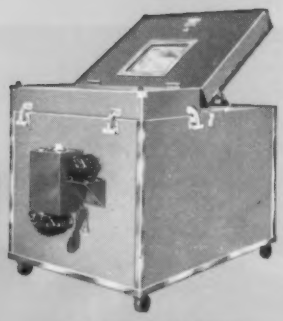
CLIMATE-LAB

maintains test conditions within ± 1% R. H. and ± 1° F.

Unit includes a conditioning chamber, work test-chamber, and a program recorder-controller employing shaped cams to produce a variety of time-temperature-humidity conditions (32 different program cycles available from stock).

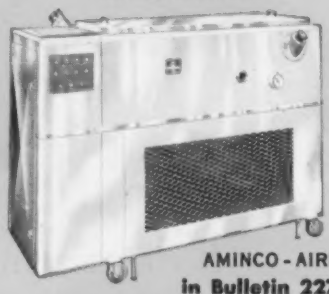
Models in 208-V and 230-V, single or 3-phase, available at the same price.

Cat. No. 4-5500—230-V, 60-C, single phase, complete as illustrated **$4545.00**

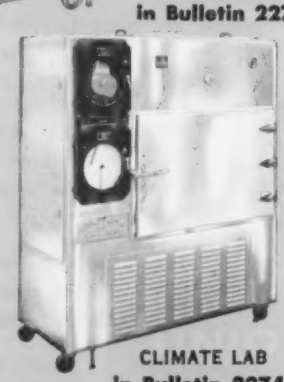


SUB-ZERO CABINET
in Bulletin 2209-B-2

STEAM HUMIDIFIED CABINET
in INS 712-B-2



AMINCO-AIRE
in Bulletin 2276-B-2



CLIMATE LAB
in Bulletin 2274-B-2

Complete information in the above Bulletins—furnished upon request.

AMINCO

AMERICAN INSTRUMENT COMPANY, INC.

Silver Spring, Maryland

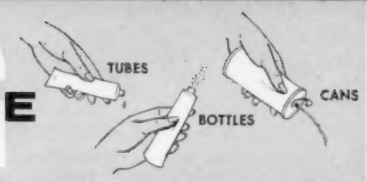
In Metropolitan Washington, D. C.

For more information Circle No. 212

For more information Circle No. 213 →

NO. 2 OF A SERIES

Bracon | SQUEEZE-TO-USE PACKAGING



How to plan for filling and sealing your Bracon polyethylene tubes...bottles...cans

Polyethylene Heat Sealing

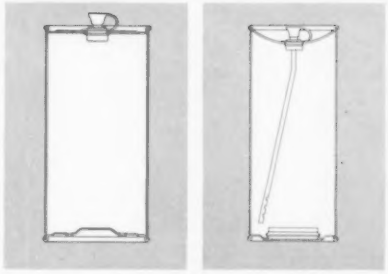
The technique for heat sealing Bracon tubes and bottles is fast, clean and produces a weld as strong as the sidewalls of the container itself. Briefly stated, the area to be heat sealed is first exposed to radiant heat until the polyethylene has reached the proper temperature. The molten polyethylene is then cooled very quickly by contact with water-cooled metal jaws, essentially remolding the polyethylene. Since hot metal does not come in contact with the polyethylene there can be no objectionable sticking or gumming of the mechanism regardless of the length of the production run.

Tube Filling and Sealing

BRACON tubes to be filled and sealed are inverted and placed with the open end up in holders which are adjustable for the various lengths of tubes available. Most standard tube filling mechanisms can be used; most automatic machines utilize diving nozzles. After the tubes are filled, two holding jaws close the tube leaving between 1/8" and 3/16" of polyethylene above the jaws. Radiant heat is then applied to this exposed portion until a molten bead is formed. Finally, two water cooled crimping jaws close just above the holding jaws (which hold the tube closed during the entire operation), remolding the polyethylene and making a fusion-type welded closing.

Bottle Filling and Sealing

Basically the same heat sealing method is used for BRACON bottles. The empty bottles are held inverted in metal holders so that about 1/8" of each bottle bottom protrudes above its holder. Filling is done through the open bottom while the bottles are seated in these holders. Bottles can be filled by most conventional methods. After filling, specially molded polyethylene discs are then positioned over the open end. These discs are the bottle bottoms and are shaped much like a very shallow cup with the flange or lip slightly larger in diameter than the bottle. The filled bottle, with disc in place, is then rotated under radiant heat until the flange of the disc and the bottom of the bottle itself are heated to the proper temperature. A water-cooled metal patter presses the heated polyethylene of the two parts together to complete the sealing process.

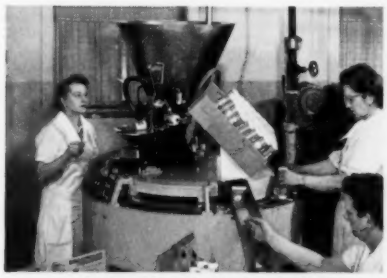


Production Filling for the BRACON Squeeze Can

The BRACON squeeze-can is supplied with metal tops and bottoms seamed to the polyethylene side walls.

Liquid filling is done through the orifice in the metal top on either standard gravity or pressure type equipment. The orifice in the metal top is 9/16" diameter, the same size as the neck opening in the all-metal detergent can. The second and final step is the insertion of the polyethylene dispenser plug. These plugs are supplied already closed. They are positioned over the orifice of the metal top and then seated by a light impact blow. Various semi-automatic devices have been used most successfully for this operation and a fully automatic machine capable of handling 200 containers per minute is now in the final stages of construction.

The BRACON squeeze duster for powders is designed with concave metal top so that the dispensing plug is recessed and the top of the cap is flush with the chimes. The metal bottom plate has a filling orifice of 1-9/16" diameter which is covered by a polyethylene snap-fit plug after filling. Any standard powder filler can be used with the squeeze-can riding to and from the filler in an inverted position. The bottom plug is then positioned over the orifice and snapped, by direct downward pressure, into position. Consumers can be instructed how to pry off the bottom plug if the package is marketed as a refillable container. Squeeze-cans for powders are shipped with dispensing plug and feed tubing assembled in position.



A typical "contract-packer's" production line for filling and sealing BRACON tubes.

Available Machinery

Bradley Container Corporation neither manufactures nor sells filling and sealing machines. However, close cooperation between machinery manufacturers and Bradley ensures that BRACON customers will be able to equip their plants with production equipment that is best suited to their particular need.

A variety of filling and sealing machines for tubes and bottles are available, including laboratory models, semi-automatic and fully automatic production models. Prices range from inexpensive to relatively higher priced units and production rates run as low as 2 units per minute for laboratory work to nearly 200 units per minute for large scale production.

COMPANY	TUBES	BOTTLES	SEMI-AUTO.	FULLY AUTO.
A & M TOOL & DIE CO. Southbridge, Mass.	X		X	X
CARBERT MFG. CO. Moody St. Waltham, Mass.	X	X	X	X
HARING EQUIPMENT (Kalix Dupuy Machine) 293 Frelinghuysen Newark, New Jersey	X		X	X
HORIX MFG. CO. 2609 Chartiers Ave. Pittsburgh, Pa.		X	X	X

There are several other machines, now in advance stages by other package machinery firms . . . Included are conversion components for existing equipment and higher speed, fully automatic machines.

Bradley Container's Technical Service Department will assist the customer's engineering staff in evaluating equipment and refer specific requirements to the machinery manufacturer.

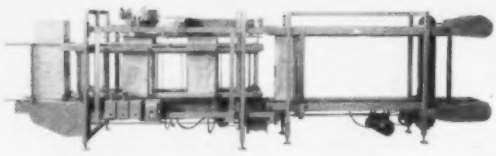
BRADLEY CONTAINER CORPORATION

A subsidiary of American Can Company

MAYNARD, MASSACHUSETTS

New York • Chicago • Los Angeles • Toronto

© 1957



PACKOMATIC FULLY-AUTOMATIC BALE SEALER

For virtually every product—bulk or pre-packaged—the multi-ply kraft paper bale offers a safe and economical shipping medium. The Packomatic Fully-Automatic Bale Sealer—with speeds up to 1000 per hour—seals securely and adds time-and-labor savings. Designed originally to handle and seal bales up to 100 lbs. weight, this machine can be customized to practically any bale size and production requirement. Let one of our sales engineers explain how your product can be shipped in bales—faster, for less.

J. L. FERGUSON CO. Joliet 1, Ill.

New York, Chicago, Cleveland, Boston, Tampa, Baltimore, Portland, Denver, Los Angeles, San Francisco, Seattle, New Orleans, Louisville, Kansas City and All Principal Canadian Cities.

PACKOMATIC machines include the Bale Sealer — Case Sealers — Opener-Loaders — Case Imprinters — Telescoping Volumetric Filler — Packer-Gluers. Units available, semi-automatic or fully-automatic depending on your needs.

Packomatic

T.M. Reg. U. S. Pat. Off.

equipment feeds, forms, positions, loads, seals, and imprints shipping containers automatically

The fully-automatic Bale Sealer is one of many Packomatic machines designed to handle your shipper-packing requirements—more economically and at a speed to match any production line. However you ship—in multi-ply paper bags or in corrugated shipping containers—whether you're packing cans, cartons or bulk material, there's a Packomatic ready to do your kind of job. Today, Packomatics are opening corrugated flats, positioning and loading containers, sealing and imprinting—fully automatically. Other models can do any of these operations singly as a complement to your present line. Investigate the Packomatic method of cutting costs and boosting production in your plant.

Six 5-qt. cans or gallon cans in 20⅛" x 13⅜" x 9 3/16" case and 20¼" x 13¾" x 8¼" case

Twelve 46 oz. cans in 21" x 13" x 7⅛" case

Twenty-four cartons in 12½" x 10⅝" x 8½" case

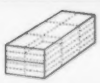
Eighteen 7 & 8 oz. cartons in 20" x 14⅞" x 8⅛" case

Sixty cigarette cartons King Size: 17⅞" x 11½" x 22" Regular: 14 13/16" x 11½" x 22"

TYPICAL CASE LOADING PATTERNS FOR CANS AND CARTONS

Twenty-four 12 oz. cans in 14⅜" x 10 15/16" x 5 9/16" case

Six No. 10 cans in 22 1/16" x 17⅜" x 7⅛" case



Thirty 1 lb. cartons in 16⅛" x 10⅝" x 7¼" case

Twenty-four cartons in 19½" x 10⅞" x 7" case

Forty-eight cartons in 22¾" x 23½" x 15⅞" case

Imprint labels
as you need them –

You can reduce your label inventory, cut printing costs, avoid overstocks and waste... by using a Tickometer to imprint labels, as they are needed.

• Imprinting labels – with weight, grade, size, color, type, code or date – is far faster and cheaper than "rubber stamping" or other marking. It's also more economical and more efficient than conventional label imprinting. You do not run into problems of inventory and storage caused by the oversupply or shortage of preprinted labels bearing various information.

• The Tickometer imprints up to 1,000 pieces *a minute*, has a printing area 2 3/16 by 7/8 inches, gives close register, and takes almost any kind or weight of paper, in sizes from 1 by 2 inches up to 15 by 15 (according to the Tickometer model). Feeds and stacks automatically, does not require a skilled operator. And can also be used to save clerical time in marking or imprinting checks, cards, coupons, tickets, sales and production slips, parts envelopes, tags, etc.

• It's so accurate, banks use it to count currency! It can be set for a predetermined count, and for registering part totals as well as whole. And it even provides for optional consecutive numbering!

• Hundreds of manufacturers have found the Tickometer a big economy. Rented or sold. Nationwide service from 302 cities. Ask the nearest Pitney-Bowes office for a demonstration. Or send the coupon for a free booklet and case studies of savings.

Pitney-Bowes

TICKOMETER

Counting & Imprinting Machine

Made by the originator of the postage meter
... offices in 102 cities in U.S. and Canada

PITNEY-BOWES, INC.
7730 Walnut Street
Stamford, Conn.

☐ *Send free Tickometer booklet & case studies*

*Name*_____

*Address*_____

clear... tough... low cost

POLYFLEX*

REG. U. S. PAT. OFF. PLAX CORP. LICENSED TO MONSANTO CHEM. CO.

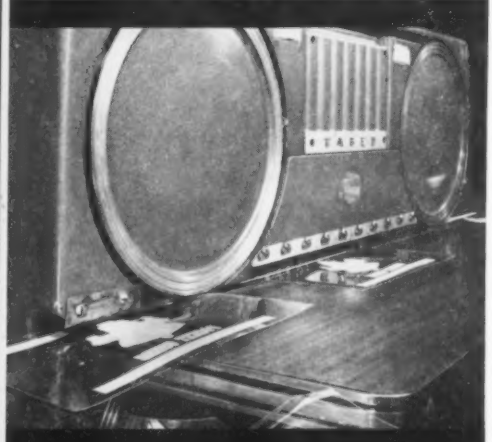
STYRENE FILM AND SHEETING

MADE OF MONSANTO LUSTREX Styrene Plastic

DISTRIBUTED IN U.S. BY MONSANTO

LUSTREX, REG. T.M. MONSANTO CHEM. CO.

Polyflex 100 can be CREASED, *folded, blanked, slit, sheeted, cut-to-size . . .*



BEADED, embossed, riveted, drilled, punched . . .

HEAT SEALED, laminated, cemented, stitched

...easy to fabricate

Standard procedure and equipment will produce a handsome variety of high gloss packages from Polyflex 100. This biaxially oriented styrene sheet—combining film thinness with sheeting rigidity and toughness—is water-clear, translucent or colored. Dimensionally stable over a wide temperature range. Light in weight for higher yield, lower packaging costs. Printable, non-toxic, low in water absorption. For samples and fabricating information, write Monsanto Chemical Company, Plastics Division, Room 0000, Springfield 2, Mass.

Monsanto also supplies polyethylene, styrene, and cellulose acetate for packaging applications.

MONSANTO

*POLYFLEX: T.M. REG. U.S. PAT. OFF. PLAX CORP. LICENSED TO MONSANTO CHEMICAL CO.

everything you sell
deserves the protection of

WAXED
GLASSINE

Perfect protective packaging invites identification, will travel!

More Sales Power Per Package ...with Waxed Glassine

Solves tough sales-wrap puzzles as it cuts your costs! Packagers agree Waxed Glassine emphasizes product quality, assures maximum consumer convenience, stimulates more sales by brand!

THE POWER OF WAXED GLASSINE OUTER WRAPS:

- **More eye appeal**—Sparkling surface provides perfect background for brilliant, appetizing illustrations, lets you use entire package for powerful all-over sales-winning designs that prompt purchase!
- **Billboards your brand**—Every package is a *billboard* generating impulse sales and assuring repeat customers with its fresh, inviting look, strong appetite appeal and stand-out brand identification!

INNER AND OUTER WRAPS OF WAXED GLASSINE:

- **Extra flavor protection**—Safely seals in all that desirable just-made goodness, keeps customers coming back for more.
- **Extra freshness protection**—Self-sealing Waxed Glassine protects against moisture invasion, maintains freshness and texture best for longer shelf and pantry life. Easier to open, easier to reclose, contents keep fresh and tasty!
- **Extra grease protection**—Waxed Glassine wrappers resist penetration by fats, oils, shortenings. No more rancidity problems! Package stays clean, inviting, colorful!
- **Extra strength**—Waxed Glassine passes rugged test of delivery, in-store and consumer handling! Made stronger to stack better, it cuts down crumbling, breakage, ripped wrappers and returns!
- **Low cost**—Lower basic costs plus constant, dependable supply combine to produce an economical package that reaches out and sells!

Waxed Glassine teams up with the experience, facilities and service of the nation's top converters, to give you modern packaging and product protection that pays off in bigger packaging business—and the job doesn't stop here!

Traffic-stopping *designs*, actual *samples*, proven *sales ideas*, complete *cost sheets* show how Waxed Glassine pays off in better packaging, higher brand profits! See your Waxed Paper salesman, or write or telephone us direct.

W
PROTECTS FRESHNESS AND FLAVOR
P

WAXED PAPER MERCHANDISING COUNCIL, INC. • *38 South Dearborn St.* • *Chicago 3, Ill.* • *Telephone: STate 2-8115*

"Dowk?"

We realize Hinde (rhymes with find) and Dauch (pronounced 'dowk') are difficult names to pronounce. We also answer to "H & D." Call us next time you need corrugated boxes.

HINDE & DAUCH

Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
14 FACTORIES • 42 SALES OFFICES

Edward W. Love has been associated with Bristol-Myers for 25 years. He attended Rutgers University. Prior to becoming head of machinery research and development this year, he was previously storeroom keeper, assistant production manager, and production manager. During World War II he was an instructor for the War Production Board in its Training in Industry program. He is vice chairman of the technical operations committee of Packaging Institute and is a member of American Management Association and the Toilet Goods Association.

Few topics intrigue technical and operational packaging experts as much as the combining of operations to get more done in less floor space than ever before. An outstanding application of this idea is the Ban line at Bristol-Myers. In this article Mr. Love reviews the development and application of a single machine performing nine operations at a speed of 120 pieces a minute and using just two operators. He also reveals some of the forward thinking that is now focusing on the further improvement of this remarkable operation.

Making one machine perform nine operations

By Edward W. Love,
Head, Machinery Research and Development,
Bristol-Myers Products Division,
Bristol-Myers Company,
Hillside, New Jersey

About two years ago, Bristol-Myers Company hit upon a unique idea for a package to contain and dispense its lotion deodorant Ban. The fact that we were to market Ban naturally meant we would have to have some means of handling the packaging. Since we were forced to start production quickly, and since no one had any ideas as to the success or failure of the product, we decided to start production in the simplest way with a minimum of equipment.

At that time, the Ban package was composed of a one-ounce round bottle, a polyethylene snap ring, a polystyrene ball, a polystyrene cap, a thermoplastic label, a paperboard boot, a display container, and a shipping case. (See Fig. 1.) We decided we would apply the snap ring to the bottle as our first operation, and to do this, we constructed a simple, hand-operated jig by which the bottle was forced into the snap ring. (See Fig. 2.) The bottle with the ring in place was then manually placed in a cup on a modified #17 Colton tube filler.

The filler was modified by doubling the length of chain and cups normally found on such a machine. Since the folding heads and the tube ejector were not needed, they were removed to permit access to the machine from both sides. The filling head was set at the correct height and locked in a fixed position.

To obtain a speed of 30 per minute we found it would require two operators to apply the snap rings and place the assembly into cups for filling. There were some problems with the filling itself (as foaming was a problem), but with minor changes to the filling stem, mostly in the size of the stem orifice, these were quickly corrected.

Assembling Components

We were now at the point of inserting the ball into the ring. An operator was used to place a ball on the top of each ring manually, after which it was forced into the ring by an air-operated plunger, the plunger being triggered at the correct time through a solenoid air valve and cam.

The next operation was to place the cap on the bottle and remove

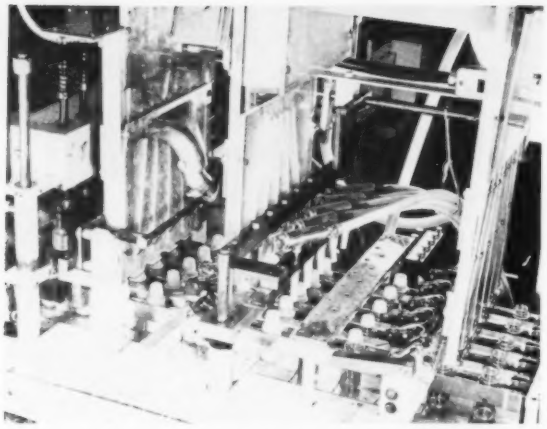


Fig. 1. Seen here in the process of automatic assembly are the principal components of the Ban package. Bottles, rings, balls, and caps go through the assembly process as the operations take place from right to left.

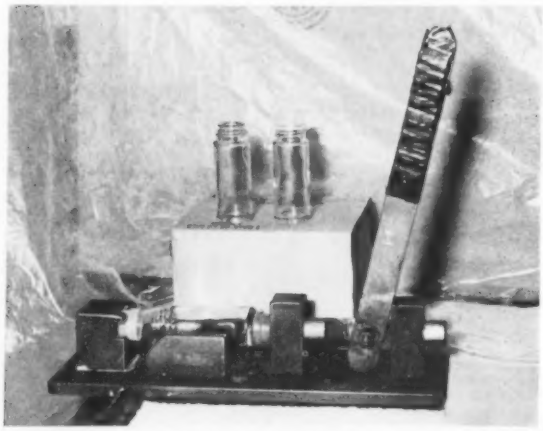


Fig. 2. Earliest efforts at partially mechanized packaging involved using this hand operated jig to force a bottle into the snap ring. From here each bottle went into a cup on a modified #17 Colton tube filler.

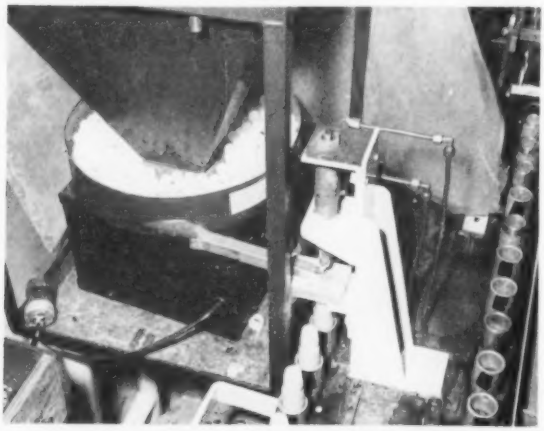


Fig. 3. A specially-built vibratory feeder facilitated the placing of balls on packages. Development and application of this equipment made possible the saving of an operator at this stage of the packaging sequence.

the complete assembly from its cup, placing it on a belt conveyor. One operator performed this function of air cleaning the cap, placing it on the bottle, and removing both from its cup. This operator did not tighten the cap. The tightening was accomplished by another operator using a Swanson cap tightener.

Up to this point, where the bottle was ready for labeling, we have used five operators to put up 30 pieces per minute. Certainly, this was a lot of labor and a situation we could not live with for too long, but at least we were in business. We had substituted readily available hands for as yet unobtainable and even undesigned equipment.

Reducing Effort, Labor

Once the operation just described was running well, we looked around to see how it could be done on the same unit with less labor and less effort. The application of the snap ring was a rugged job for the operators, but regardless of our thoughts, we could not save anything here. The placing of the balls was an easy operator job and seemed to be the first one to work on. The Syntron Company actually gave us the answer in a specially built vibratory feeder. (See Fig. 3.) This enabled us to save an operator.

In the meantime, we were still trying to make the snap ring application easier and faster. Several revised jigs were tried, and finally, one which was air-operated seemed to be a step forward; but still not the answer. We began to wonder if we couldn't apply the ring to the bottle in the filling machine. After all, we had been capping 10¢ Mum and Bufferin with slipcovers and snap caps without trouble. Let's try it — we did, and it worked!

Handling Of Rings

The rings were hand oriented and fed into a chute. The chute was positioned so that as the bottle indexed to the next station, the snap ring was literally wiped on. A large diameter rubber-faced wheel was provided immediately after the wiping to insure complete positioning of the

ring. (See Fig. 4.)

The job of feeding bottles and the job of feeding rings was now easy. We could have used a sorting wheel to orient the rings, but by that time, other plans which will be discussed elsewhere in this article began to jell so we decided to continue this operation by hand methods.

With this problem worked out we then set up two #17 Coltons, each operating at 40 per minute with two Swanson cap tighteners, and a New Jersey Machine #160 labeler as shown in Figures 5 and 6. Figure 6 shows the first layout. We were now in a position to turn out 80 pieces per minute with eight operators, whereas the original setup provided only 30 pieces per minute with five operators. To get the same output (80 per minute) under the old setup would require 13 1/3 operators.

Planning Mechanization Boost

The Ban package clicked almost at once, and because of this, we had to make even greater improvement in our speed of output and to cut to the bone the number of operators required. So, once again, we put our heads together and came up with an idea which we further discussed with the Allied Equipment Company. Through a mutual effort the present Ban machine was developed, constructed, and put into operation.

The new machine now takes empty bottles from a hopper; an operator places them on their sides with the mouths facing out, divides them into five lanes, and loads them into the machine in a horizontal position. Air cleaning of the bottles is accomplished during the loading cycle since the pushers are equipped with air nozzles. The air flow is controlled by means of a cam and solenoid valve. Vacuum collection of the debris (if any) removed from the bottles is also provided.

Five Operations At Once

The cleaned bottles then index forward until they are brought into an upright position. At this point, they pass under a hopper containing the oriented snap rings, and in so doing, the ring is forced on in the same manner as previously described with the old units. (Bear in mind

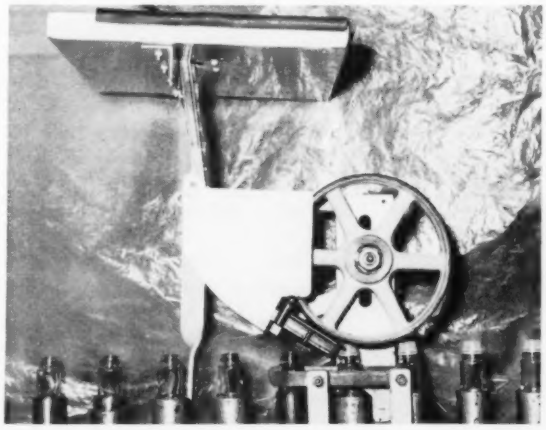


Fig. 4. This automatic snap ring applicator positions a ring on each container as seen moving here from left to right. The rubber faced wheel literally wiped on the ring — taken from the chute and positioned as each bottle was indexed.

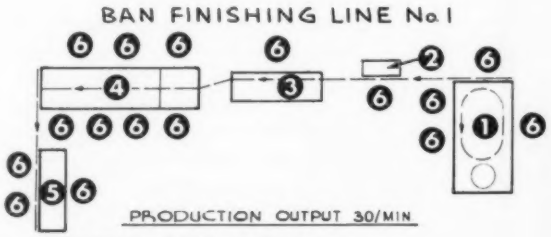


Fig. 5. The original Ban finishing line provided an output of 30 packages a minute. It used the combination of equipment as shown above.

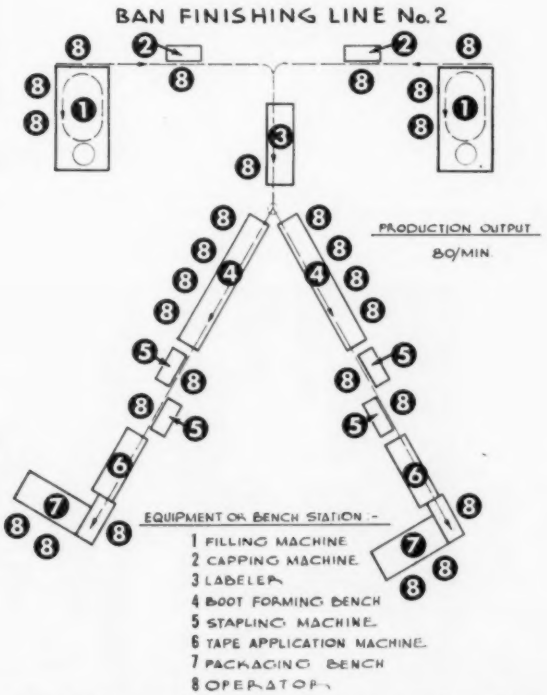


Fig. 6. Providing the additional equipment seen here made possible a production output of 80 packages a minute, with only eight operators. Had it been done with the original arrangement, it would have required 13-1/3 operators.

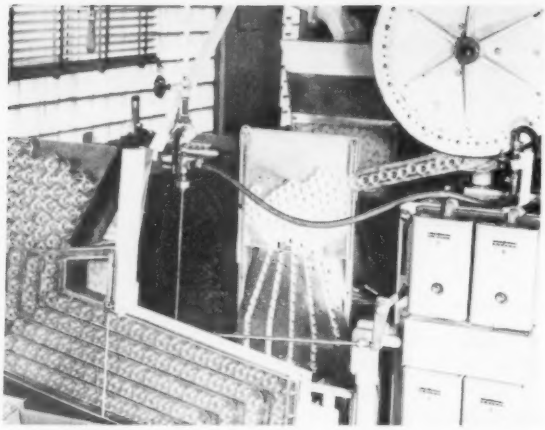


Fig. 7. Here is the bottle feed snap ring sorter and snap ring dividing hopper of the current mechanized Ban operation. It is equipped with micro switches to detect a missing ring after bottles have moved through. In effect there is a no bottle and/or no ring shut off.

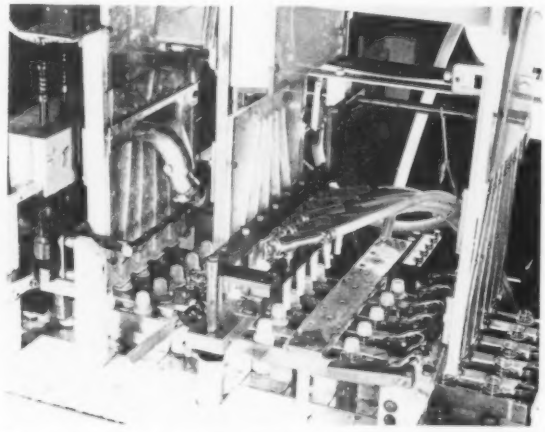


Fig. 8. Seen right to left are the snap ring station, filling operation, marble station, and cap station. There is a no marble detector which shuts off the unit if the bottle has no marble.

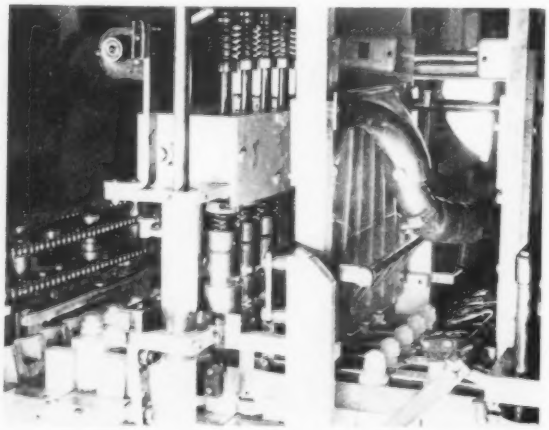


Fig. 9. The cap station and the cap tightening station are seen right to left. A clamping device prevents bottles from turning during the tightening process.

that each of these operations now being described is being done *five* at a time.)

The orienting of the rings is accomplished by means of a Consolidated Packaging Machinery sorting wheel which delivers the rings to a hopper on the machine, which in turn, divides them into five lanes. The Consolidated sorting wheel is of the standard capping machine type with the pins on the wheel so arranged that the rings can pass between the back plate and wheel only when the small diameter of the ring is facing the wheel.

Since there is probably a fifty-fifty chance that a ring will be in the correct position to pass the pins, it is rather simple to determine the size and speed of the wheel to get the required output. Just a word of caution — testing should always precede final decision on size and speed. Microswitches are provided to detect a missing ring after the bottles have moved through this station and will shut off the machine if a ring is missing. Obviously, these switches will also shut the machine off if a bottle is missing as well. This feature provides, in effect, a no bottle and/or no ring shut off, and therefore, avoids messing up the unit by allowing the filling to take place. (See Fig. 7.)

Filling Has Its Problems

Filling is accomplished at the next station by means of five separate heads and five pistons. We made the bore of the filling cylinders small and the stroke of the piston long in order to get as much accuracy in filling as possible. We have not obtained the uniformity of fill we hoped for, but believe we know why. Instead of drawing the Ban up from a float tank located below the filling heads, we connected them directly to the storage tanks located on the floor above, and consequently, have a certain amount of head pressure. It is this head pressure we think is causing the trouble.

The next operation is applying the marble to the snap ring on the filled bottle. Again the marbles are divided into five lanes in a feeding hopper, and merely plunged down into the

ring while the bottle is at rest under this station. This is probably the simplest operation of all. No real problems were experienced except in the fact that the marbles tend to bridge readily and means must be taken to gently agitate them to break up the bridging. This station is also equipped with a no marble detector which shuts off the unit if the bottle has no marble. (See Fig. 8.)

Application Of Cap

We are now ready to apply the cap. Here again, the caps are previously oriented and then broken up into five lanes by a hopper on the machine. As the bottle passes under the hopper on the machine, the caps are snapped into position for tightening at the next station. The bottle itself strips the cap from the lane. Because the caps used on Ban are very easily marked and scratched, we had to construct a special means of sorting them that would give a minimum of tumbling and agitation.

With the caps in place, we then had to tighten them. To do this we mounted five Swanson chucks on continuously rotating shafts, and arranged to move them up and down in time with the rest of the unit. Adjustment was provided on each spindle to obtain a desired removal torque of the cap between eight to ten pounds. A clamping device was, of course, needed to keep the bottles from turning during the tightening process. (See Fig. 9.)

The final operation was to sweep the completed bottles from the machine and onto a conveyor leading to the labeler. (See Fig. 10.)

Reviewing Accomplishments

Just what have we accomplished with this machine? — Let's recap:

1. Bottle loading.
2. Bottle cleaning.
3. Application of the snap ring.
4. Filling.
5. Marble application.
6. Ring, bottle and marble detection.
7. Cap application.
8. Cap tighting.
9. Ejection of completed bottle.

All of the above operations are being performed on one machine with two operators — one to feed the empty bottles, and one to actually run the machine. The machine speed is 120 pieces per minute. Now, if we compare this output with the first setup at 30 per minute, and the second setup at 80 per minute, we have made real strides.

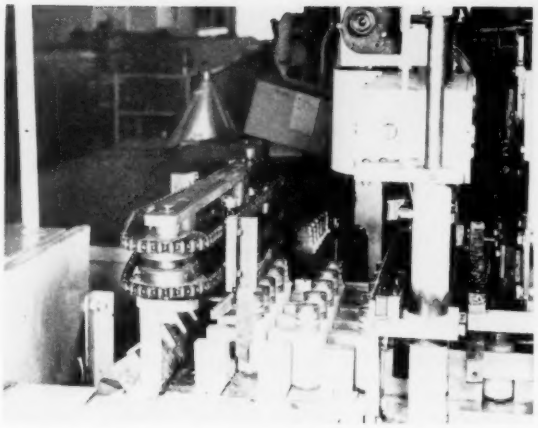


Fig. 10. Final operation is the sweeping of completed bottles from the machine and onto a conveyor leading to the labeler. This is the final phase of the performing of nine operations on one machine, with two operators — at a speed of 120 pieces a minute.

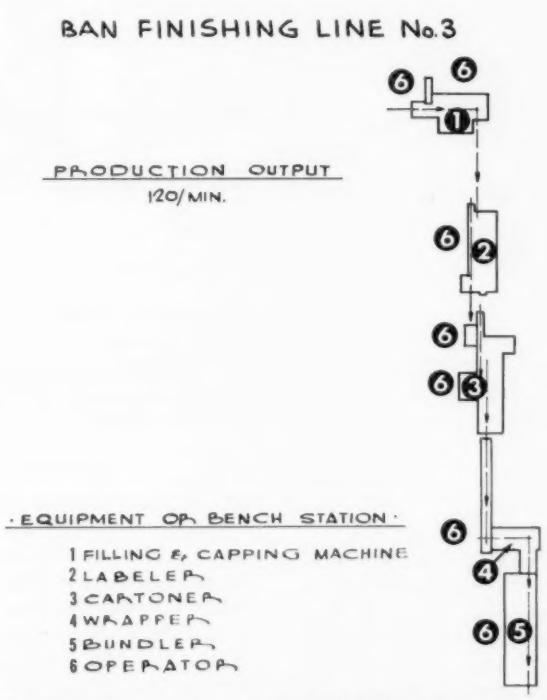


Fig. 11. Looking to the future, the layout of the Ban line may have a pattern such as this. Bristol-Myers engineers and designers already have in mind changes on the existing equipment — and contemplate a unit utilizing ten lanes with a planned output of 300 a minute.

	Operators	Speed
First setup	5	30
Second setup	8	80
Third setup	2	120

To look at it another way, to get 120 per minute under the first setup

(Continued on Page 49)

Albert S. Taylor is a graduate of Penn State University with B.S. and M.S. degrees. After three years as a quality control representative of the Birds Eye division of General Foods, Inc., he joined Du Pont in 1941 as a technical representative for packaging films. He is responsible for part of Du Pont's adhesive testing program for its various films. Much of the adhesive evaluation program and the development stages of "Mylar" took place under his direction. He is a member of American Society for Testing Materials.

Here is a thorough review of adhesives for a variety of flexible packaging applications — including bags, carton windows, aluminum foil, skin packaging, and various laminations. In this article Mr. Taylor enumerates details of a number of tests and sets forth the results obtained from them. His observations, including explanations in support of tests should prove helpful to anyone concerned with adhesives for flexible packaging materials.

Evaluation and testing of adhesives for transparent films

By Albert S. Taylor,

Technical Specialist,
Film Department,
Sales, Development, and Technical Service,
E. I. du Pont de Nemours & Co., Inc.
Wilmington, Delaware

When cellophane was first introduced by Du Pont, suitable adhesives were not available. Thus, Du Pont was forced to initiate a research program to develop and actually manufacture adhesives for this product. Without this program and the adhesives formulated, present applications for transparent films could not have been developed. The Film Department of Du Pont soon withdrew from the manufacture of adhesives, and for over 20 years the adhesive industry has supplied the requirements of customers.

However, with more than 100 different types of films on the market and others in the development stage, constant review of adhesives in connection with film applications is an important phase of product development and customer service activities at our Chestnut Run laboratory. The reasons for this activity may be summarized as follows:

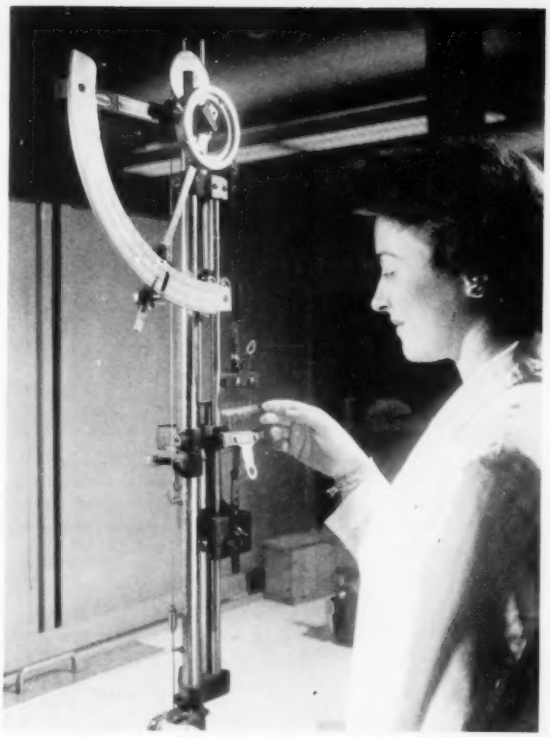
Why Review Adhesives?

1. To answer customer requests for information on adhesives.
2. To learn of the latest developments in this rapidly changing field.
3. To present new uses to adhesive manufacturers.
4. To assist in testing adhesives for current market development problems.

Broad distribution of our products necessitates many types of adhesion tests. An important first step is to obtain detailed information about the end-use requirements of a given product and to plan the test so that these specifications will be fulfilled. This important phase of adhesive testing is often very difficult, because in the early stages, the problem may not be defined concisely. We do not always attempt to establish the machine properties of adhesives, since the many types of equipment in use require individual attention. However, in special cases, tests in the field on commercial machines will be made.

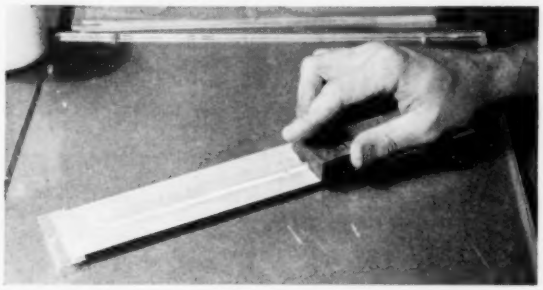
Adhesion Applications

Some of the principal types of



1. Suter tester operator tests seal strength of cellophane sample. Apparatus is part of equipment used for testing adhesives in connection with cellophane and other films in the Du Pont Film Department's sales development and technical service laboratory.

2. Static load tester, specially designed at Du Pont's Film Department Laboratory, determines ability of bag adhesive to stand continued shear loading. Technician checks timers which record time required to separate seal.



3. Bird applicator applies adhesive to board for evaluating adhesives for "Mylar" polyester film in window carton and other applications. Machined groove in applicator controls width and thickness of adhesive.

adhesion involved with our various films — cellophane, "Mylar" polyester film, and cellulose acetate — include:

1. Adhesives for bag fabrications.
2. Adhesives for window cartons.
3. Solvent seal solutions for package overwraps.
4. "Mylar" laminated to aluminum foil.
5. "Mylar" laminated to steel.
6. "Mylar" laminated to polystyrene.
7. "Mylar" laminated to vinyls.
8. Benzyl alcohol seals.
9. Adhesives for skin packaging.
10. Adhesives for heat sealing of "Mylar".

There are several procedures employed for evaluating adhesives used in these diverse applications. It is recognized that the best test of any adhesive is with the fabricated item. However, such material is not normally available to us, and these typical procedures illustrate the types of tests employed. Dependent upon circumstances, preparation or test methods may be varied.

1. Bag adhesives:

A Potdevin label pasting machine with an edge gumming attachment applies a controlled width and thickness of adhesive to a strip of film. This is combined with a similar strip of film and stored in packs with an interleaving strip to simulate the storage of bags in sleeves.

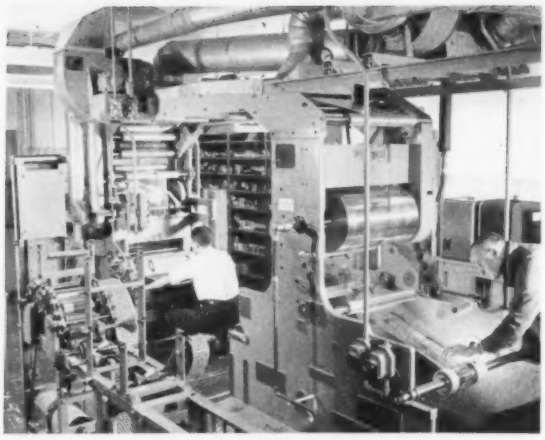
Samples are customarily checked for rate of drying for one month. Bond strength, film wrinkle, color of adhesive, and adhesive penetration are determined after two, four, and six months. A Suter tester which measures the maximum peel strength is used with 1½" wide samples, while the other qualities are determined by inspection. (See Figure 1.) A minimum bond strength of 500 grams is considered necessary and many current adhesives considerably exceed this strength.

Cellophane samples are normally stored at room conditions, and 80% R.H. — 72°F. "Mylar" polyester film is stored at room conditions, 20% R.H. — 72°F., 80% R.H. — 72°F. and 0°F. It should be noted that these conditions may be varied to meet the requirements of any specific use.

For cellophane bags we also use a static load test to determine the ability of the adhesive to withstand a continued load, such as may be encountered when dry beans are packaged in cellophane bags. After the adhesive is dry, a load of 2,000 grams (See Figure 2) is clamped to the sample, stored at room temperature in such a manner that a shear force is exerted on the seal. An adhesive which will not separate after 24 hours is considered satisfactory for bean packaging.

One bag adhesive test was designed to evaluate adhesives for polymer

4. Laminating table permits wrinkle-free lamination of film to a substrate. Hinged frame supporting adhesive-coated sheet of "Mylar" polyester film is placed on top of aluminum foil by operator. Sample is then hand-rolled, treated in platen press, and evaluated for adhesive performance.



5. Flexographic press permits investigation of problems in the high speed printing of "Mylar" polyester film, cellophane, and acetate films. Actual use conditions in the trade may be duplicated or closely approximated with the press.

coated "Mylar" polyester film. Such bags could be exposed to service condition between 0°F. and 250°F. The film appearance, adhesive color, and adhesive penetration characteristics were satisfactory and consequently only bond strength results are tabulated.

2. Window carton adhesives:

These tests involve the adhesion of "Mylar, moistureproof cellophane and acetate films to newsboard, bleached sulphite, glassine lined, parchment lined, and waxed boards.

A 3/16" line of adhesive at 2.0 mil wet thickness is applied to the board by means of a Bird applicator. (See Figure 3). The film is then superimposed on the adhesive and samples stored in packs for evaluation.

Cellophane and acetate samples are stored at room conditions. Because of the wide applicability, "Mylar" is stored at room conditions, 80% R.H.-72°F. and 0°F. After one week, one, three, six, and twelve months, film wrinkle and adhesive color are observed and the percent of the adhesive line showing paper fiber tear is determined by hand peel. In the past, samples have been stored for six months, but some of our window carton customers have recently indicated the desirability of longer aging.

For normal temperature service, a 60% fiber tear is considered a minimum standard for adhesion based on consensus of several adhesive suppliers and users. At 0°F., a strong suction type bond which will withstand flexing is considered acceptable.

Room Conditions				20% R.H.-72°F.		80% R.H.-72°F.	
Adhesive	A	B		A	B	A	B
3 days	300	620	1 month	1000	900	780	310
7 days	840	950	2 months	1240	630	910	370
14 days	970	1040		0°F.(1)		250°F.(2)	
21 days	880	910		A	B	A	B
28 days	940	890	1 month	1000	0	700	600
2 months	1000	950	6 months	1100	0	640	710
4 months	1140	900					
6 months	1210	870					

Figures = Grams peel strength necessary to separate 1½" length of adhesive line.
(1) = Stored two days at 0°F. after one and six months at room conditions.
(2) = Stored two hours at 250°F. after one and six months at room conditions.

3. Adhesives for aluminum foil and metalized surfaces for metallic yarn laminations:

Basically, this type of metallic yarn consists of "Mylar" polyester film laminated to either aluminum foil or the metalized surface of metalized "Mylar". In certain cases, "Mylar" may be laminated to itself. The test method involves adherence of "Mylar" to both surfaces of 0.00045 aluminum foil.

We used our laminating table (See Figure 4) for the preparation of the test samples. This equipment is so constructed that film samples may be taken direct from a roll, the film held taut, adhesive uniformly applied with a wire-wound draw-down

The manufacturer was informed that adhesive A should be satisfactory for fabricating bags of polymer coated "Mylar" polyester film. Adhesive B was reported as needing improvement in hydrolytic stability and cold temperature characteristics.

rod, solvents exhausted by hot air dryers and the coated film brought into contact with the second material at the opposite end of the table.

Since this test requires the adherence of "Mylar" to both surfaces of aluminum foil, we repeat the above process before sealing in a platen press at various temperature levels.

There are many requirements for this field, and bond strength, per se, is less important than other items. We use these tests on 1/32" strands as a criterion of performance for these other items:

Tests Of Performance

a. Breaks in aluminum foil after 50% elongation.

b. 15 minutes in 3% hydrogen peroxide at 205°F.-210°F. plus one hour in boiling water.

c. 20 minutes in boiling Arkansas TS stripper solution,* dried 24 hours, then boiled 20 minutes in neutral soap solution.

d. Boiled one hour in dilute acid, pH 3.0.

e. Boiled one hour in dilute alkali, pH 10.0.

f. Agitate 20 minutes in "Perclene" perchlorethylene plus 4% #886 solution,** dry two minutes at 130° F.-140°F. Repeat for five cycles.

g. Agitate 40 minutes in Stoddard solvent plus 4% #886 solution, dry two minutes at 130°F.-140°F. Repeat for five cycles.

*A commercial agent for stripping dyes, manufactured by Arkansas Co., 185 Foundry St., Newark, New Jersey.

**A surfactant manufactured by R. R. Street Co., Inc., 361 Monroe St., Chicago 6, Illinois.

Five per cent delamination after any of these tests is used as the maximum permissible degradation. For complete evaluation the laminations are stored at room conditions and rated after one, three, six, and twelve months. Five per cent delamination after any of the tests is used as the maximum permissible degradation for satisfactory performance.

The initial results with four successful adhesives are presented above:

Adhesive	A	B	C	D	E
50% Elongation — breaks/inch	60	39	8	30	8
		% Delamination			
Boiling in hydrogen peroxide and water	0	2.0	0	7.5	6.4
Boiling in Arkansas stripper solution and neutral soap	0	5.6	0	1.5	2.3
Boiling in water at pH3	0	4.0	0	4.3	0.4
Boiling in water at pH10	0	3.2	0	4.5	4.2
Agitation in "Perclene"	0	4.3	0	0	5.8
Agitation in Stoddard solvent	0	0.0	0	0	95.0

Based on these results, we suggested the use of A, B, C, and D adhesives. Adhesive E was not considered suitable for this type of lamination, and the results sent to the company which formulated it. After aging for one year, we noted general improvement in the above qualities by the four satisfactory adhesives.

4. Adhesives for laminations of "Mylar" and steel:

This field requires laminations capable of withstanding stamping, temperatures used for curing gasket compounds and resistance to corrosion.

After discussions with manufacturers, these methods were devised to study adhesive characteristics:

a. 1020 hot-rolled, black plate steel is cleaned by exposing to hot "Perclene" perchlorethylene vapors and scrubbed with toluene. Laminations are made by applying the adhesive to 100 gauge "Mylar" polyester film, evaporating the solvents and combining the film and metal in a platen press at 350°F. for four minutes with 70 p.s.i. pressure.

b. After aging one week at room temperature, samples are stored for two weeks at 160°F. Bond strength is determined by use of a 180° peel-back technique with a Suter tester. It is desirable that loss of bond strength not exceed 25%.

c. After aging one week at room temperature, a 100 gram dead load was applied with 180° peel-back on one inch wide seal for four hours at 160°F. Maximum permissible peel-back was 1/32". Results of this test did not correlate with later field test results.

d. *Forming tests.* After aging one week at room conditions, samples were formed on an Erichsen tester. With this equipment, it is possible to draw metal to a specified depth without metal flow. This is accomplished by clamping the sample and slowly exerting sufficient pressure to indent the metal to a predetermined distance.

Successful samples may be drawn to a depth of 7.5 millimeters, then stored for 45 minutes at 200°F. with no delamination. This test correlated very well with field experience.

e. *Surface exposure.* Unformed panels are tested for corrosion resistance by placing the "Mylar" polyester film side of the panel in contact with the mouth of a half-filled bottle of tap water. This assembly is placed on its side so that the liquid contacts one-half of the panel.

Panels are stored for 38 days at 130°F. and rated for corrosion by estimating the percentage of the surface area showing degradation.

5. Adhesives for skin packages:

This product requires an adhesive which can be coated on a printable board prior to use. "Mylar" is brought into contact with the board by means of vacuum in the presence of heat. To be successful, an adhesive should remain relatively colorless, be tack free after coating, and maintain bond over a relatively long period under a variety of conditions.

These tests were conducted:

a. The adhesive is coated on the board, air dried and inspected to determine if the adhesive is essentially colorless and free from blocking.

b. "Mylar" polyester film is heat sealed to the coated board using 5

p.s.i. pressure, 350°F. and 1 second dwell.

c. The fiber tearing characteristic of the bond was determined by hand peel. We established 100% fiber tear as necessary for this use.

d. Candidate adhesives from the above testing are used to make skin packages with hardware items of several shapes and weights.

e. These packages are subjected to commercial shipping as well as machine vibration and impact tests at 0°F. Packages are examined for evidence of adhesive failure.

f. Sample packages are alternated weekly between 90% R.H.-100°F. and 20% R.H.-72°F. for six weeks.

g. Packages are stored on edge at 130°F. for six weeks, 0°F. for six weeks and room conditions for six months.

All units tested in "f" and "g" were examined for degree of loosening of film and color change in the adhesive.

6. Adhesives for laminations of "Mylar" and polystyrene:

We were interested in learning about adhesives which could bond this lamination when subjected to a subsequent forming operation. It was determined that the adhesive should be colorless, have reasonably strong bond strength, creep resist-at normal temperatures, and be able to withstand forming without subsequent delamination.

To investigate this problem, this procedure was devised:

a. The adhesive is applied to the "Mylar" polyester film between 0.3 and 0.6 mil dry thickness and dried in a warm air blast for 20 minutes. The film is then rolled onto 125 mil polystyrene with a heated rubber roller to give initial bond. A platen press is used to combine the lamination with the film surface at 300°F. and the polystyrene surface unheated to avoid distortion and flow with an 8-second cycle at 125 p.s.i. pressure. These conditions may vary depending upon thickness and type of polystyrene being investigated.

b. Peel bond strength is determined each week for four weeks at room conditions.

c. Forming tests. A sample 4½" square is secured in a ring clamp and this assembly heated for ten minutes at 350°F. A 10-pound plug, contact surface of 1⅛" diameter, is placed against the film surface to form sample. The assembly is then chill-set at 0°F. for fifteen minutes.

Formed samples are a basic phase of our evaluation and final acceptability of a lamination is based upon storage of such samples after:

One week at room conditions.
Three months at 90% R.H.-100°F.
Three months at 130°F.

Delamination, wrinkle development, and adhesive color are considered at each examination.

7. Benzyl alcohol seals:

It is possible to seal "Mylar" polyester film to itself by applying a small quantity of benzyl alcohol and heat sealing. To evaluate the performance of this material, we determine optimum sealing conditions for each thickness of film and the aging characteristics of seals when stored at various trade conditions.

The solvent is applied with a wick applicator and these seals developed by use of a Precision sealer exerting 20 p.s.i. pressure. Conditions used for sealing 50, 100, 150, 200, 300, 500, and 750 "Mylar" A were:

Temperatures in °F.	Seconds dwell time
325	½, 1, 2
350	½, 1, 2
375	½, 1, 2

The optimum sealing conditions from above were used to prepare samples at:

Conditions	Duration of test
Room conditions	12 months
20% R.H. — 72°F.	12 months
80% R.H. — 72°F.	12 months
0°F. after storing for 1 month at room conditions	12 months
Sterilized with 15 p.s.i. steam pressure for 30 min. prior to storing at room conditions	12 months
Self-service refrigerated case	6 weeks

At prescribed intervals the samples were examined for evidence of solvent penetration, color, and film wrinkle or distortion due to benzyl alcohol. Peel bond strength was obtained by use of a Suter tester.

8. Heat seal adhesives:

We are interested in the development of adhesives which can be pattern coated on heat-shrinkable "Mylar" polyester film for fabricating bags.

For economical operations, it was desirable to apply the adhesive by means of the Flexographic printing system, because many of these bags would eventually be printed. It is necessary that the adhesive be colorless and free from odor after loading bags, be non-toxic, have a seal characterized by ability to withstand loading impact without film tearing and dry at relatively low temperatures, essential because the film shrinks at the temperature of boiling water.

We conducted preliminary tests by means of hand draw-downs to check initial adhesion and blocking characteristics. Following this we used our Kidder flexographic press (See Figure 5) as a means of determining:

a. If adhesive could be applied by this method.

b. What adhesive thickness could be obtained.

c. If adhesive would cause blocking in the roll after printing.

d. To provide material for bag fabrication.

Tests With Bags

After printing we used our Simplex bag machine for checking the heat sealing and fabricating characteristics. The bags so fabricated were used for our tests:

(Continued on Page 49)

For more information circle No. 219 →

Burry's has a reason...

Keeping deluxe cookies tasting just as good out of the box as out of the oven is a job for waxed glassine. And the eye appeal of Burry's white waxed glassine inner liner, printed in gold, sure sets the taste buds a goin'.

Protected by Riegel means much more . . . a complete, *engineered* system of packaging:

Product protection *always*, plus . . .

Paper tailored to run at high speed on automatic machines.

Paper made to your own specifications . . . plain, laminated, waxed, poly-coated, printed.

Paper that is made right, that will run right, that is priced right.

Hundreds of today's best-sellers benefit from Riegel's uniformly effective system of product protection. You can, too.
Write Riegel Paper Corporation, 260 Madison Avenue, New York 16.

Riegel

PROTECTIVE PACKAGING PAPERS

Burry's new Masquerade assortment of French cookies uses a printed inner liner of Riegel's opaque waxed glassine.

Robert C. Mounsey attended Ohio State University as well as the prescribed machinists' course sponsored by United Shoe Machinery Corp. During World War II he attended training schools for aircraft maintenance and has studied machine design and industrial engineering. He has been associated with General Foods since 1954. A member of the American Institute of Plant Engineers, Mr. Mounsey is vice president of his local chapter.

The increasing mechanization of packaging lines is not an unmixed blessing: Among the problems showing up in its wake is that of detecting foreign particles such as "tramp metal." In this article Mr. Mounsey reviews the metal detection systems in his plant, tells how they work, and sets forth in specific details the results they are producing. In one instance it even detected a particle of fine wire embedded in the boxboard of a carton itself.

Detecting and eliminating metallic particles in packaged foods

By Robert C. Mounsey,
Plant Engineer,
Birds Eye Division,
General Foods Corporation,
Gloucester, Massachusetts

With automation steadily growing in importance, modern food manufacture is relying more than ever upon the use of conveyors and conveyor systems. Among the changes caused by the reduction of manual handling in favor of mechanical conveyance, two are of particular interest in packaging lines. The first is the reduction of the amount of visual inspection, and the second is the possibility of introducing "tramp metal."

To meet the problems arising from these new conditions at the Birds Eye plant at Gloucester, a metal detecting device was needed that could unfailingly indicate the presence of minute particles of magnetic and non-magnetic metals embedded in food enclosed in a container, traveling on a conveyor at 240 feet per minute. The desired device would also have to eject the offending package.

Seek Operational Simplicity

After engineering management had studied the reputed advantages of many types of detectors (ranging in price from $650 to $2000 plus), a model was chosen that was notable for its simplicity of operation and its exceptional ability to indicate metal of minute size. Interestingly, it was also one of the less expensive models considered.

The detector instrument selected is an electronic device that can register positive finds of particles of magnetic and non-magnetic metals by three methods: Sounding an alarm buzzer; stopping the process; or actually ejecting the product from the production line. We chose the ejection type, which consists of three major parts:

1. The metal detector, consisting of two coils enclosed in a metal box with an electronic chassis mounted on top. The unit is set on rubber shock mounts to absorb vibration, and is connected to the electronic supply by two cables and by a third control circuit.

2. The power supply unit, in a cabinet containing a voltage regulator and oscillator supplying high frequency, 260 V. d.c., 105 V. d.c., and 6.3 V. a.c. heater power.

3. The test scope, incorporating a

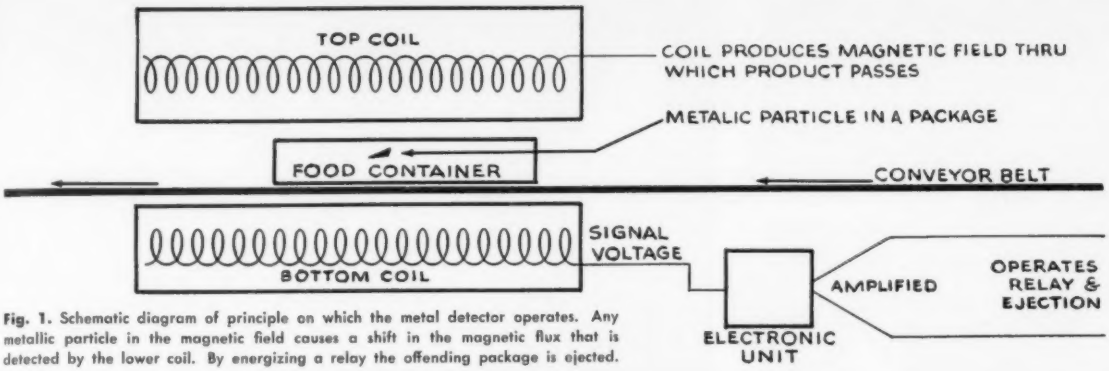


Fig. 1. Schematic diagram of principle on which the metal detector operates. Any metallic particle in the magnetic field causes a shift in the magnetic flux that is detected by the lower coil. By energizing a relay the offending package is ejected.

cathode ray tube which is used in adjusting and testing the sensitivity of the detector.

The ejector is designed so that a paddle, when energized, will swing diagonally across the conveyor to eject the product.

How It Operates

The theory of operation is based on the passing of the product through a magnetic field. A metallic particle traveling between the coils causes a shift in the field that will be detected by the lower coils which, in turn, produce a signal voltage to actuate the ejection apparatus. Besides operating the relay ejection for the mechanism, the detector energizes a red light.

The relay is designed to be energized for a pre-determined length of time to suit the requirements of the reject mechanism. The sensitivity of the system is set manually so the detector can be kept in balance. A thyratron tube is used for varying the voltage in making the unit more —or less—sensitive.

Installation of this equipment has required some adaptations of our existing equipment. Our conveyors were constructed of troughed stainless steel, and the belts were metal laced. Neither of the two could be allowed to remain in close proximity to the proposed detector. It was necessary to cut out a section of the troughed conveyor, and lucite was used wherever support was needed for the fast-moving conveyor. The metal lacings were replaced with synthetic non-metallic fasteners.

The stand designed to hold the de-

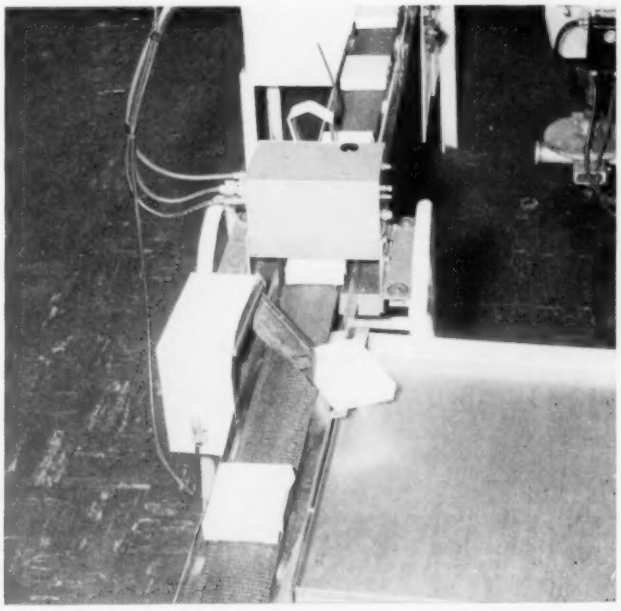


Fig. 2. Packages moving forward pass through the detector unit and, if a metallic particle is present in a package, the ejector shoves it off the conveyor onto a table to await study by quality control.

Fig. 3. Close-up of the electronic metal detector unit with ejecting mechanism in operation. Even a tiny piece of non-magnetic pipe scale will energize the relay and kick the package off.

With a large stock line like this . . .

PLUS

New designs like this- Plax makes it easy

TO GET THE RIGHT PLASTIC BOTTLE FAST!

Want to expedite the introduction of a new product . . . or move into a market test quickly? You have a fist full of advantages in Plax stock plastic bottles. All Plax designs have been tested and proven — for visual appeal, size impression and functional efficiency as a dispensing package. We — and our experienced distributor organization — are ready to work with you in developing quickly a complete package that will move and keep moving off retail shelves.

Leaders in making plastics more useful

PLAX

PLAX CORPORATION · P. O. BOX 1019 · HARTFORD, CONNECTICUT

tector was made of electrical conduit and bolted to the floor. Rubber shock mounts, of course, insulated the stand from the electronic unit. The unit was set on the stand so that the housing of the lower coil was just slightly below the lower surface of the rubber conveyor belt, in order to eliminate the vibration of the traveling belt on the surface of the housing. The upper housing was adjusted in height to clear the packaged product and the moving conveyor.

Power Details

The power unit can be located at a remote point if desired, but it is advisable to locate it as near as possible to the detector. All connections were made to the detection unit by means of a flexible rubber insulated cable. A five-prong plug supplies the power to the detector, and a co-axial receptacle supplies the high frequency power. A three-wire cable is used to supply the power (115 volts) from the plant power supply. After the installation is made and the power applied, a red light appears on the detector after a slight warming-up period to announce that the unit is ready for operation.

The test scope is inserted in its position on top of the detector, and the sensitivity is adjusted manually to the point where the conveyor belt in operation actuates, by vibrating the relays, to eject the product. However, it is not necessary to set it to such a fine point if such delicate detection is unnecessary. The sensitivity must be checked periodically, as the aging of coils, resistors, and condensers changes such settings. The ejection mechanism is placed on the conveyor line at a point that will allow the packages to be rejected when energized. Further, it is spaced properly in conjunction with the speed of the belt.

Results Of Detection

Here is a sample of some of the items that have been detected and rejected by the device:

Steel wool: Approximately 0.001 to 0.002 inches long in product — magnetic.

Metal wire: Approximately 0.005 grams embedded in product — non-magnetic.

Scale: Approximately 0.03 grams —non-magnetic.

Solder: Approximately 0.07 grams non-magnetic.

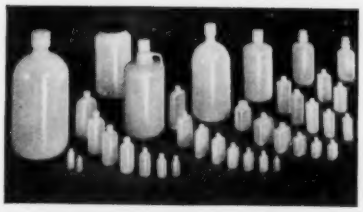
There have been others, but these samples show how fine a degree of detection can be made. In one instance, after removal of the product from the rejected carton, the empty carton itself was run through the detector and was promptly rejected. Under closer scrutiny, it was found to contain a fine wire embedded in the cardboard of the carton itself.

Our quality control department plays an important role in the use of this apparatus. In those instances when the presence of metal is detected, quality control investigates its origin to prevent its recurrence. Whereas the metal detector is located after our carton-closing machine and the package is ejected, quality control takes the unit, opens it and by a process of elimination, by passing the product through the detector, they will find the metallic particle which originally caused the ejection of the package from the line. A complete file is kept as to where the metal was found and in what product, the type of metal, and what preventive steps were taken.

This type of instrument has been found to be so satisfactory in performance on our packaging lines that there are now three in operation. We use the detection apparatus not only on finished product, but also on raw material entering our valuable equipment.

A word of warning

The importance of accurately detecting foreign particles in sealed packages becomes increasingly evident. At the same time, it is increasingly necessary to do this vital detection job as simply and as economically as possible. Mr. Mounsey's article deserves careful study.



FOR IMMEDIATE DELIVERY ON STOCK PLAX BOTTLES

Call one of the Plax distributors below. Each carries full inventories of our stock containers — from 1/4 ounce to 13 gallons.

Albuquerque, N. M.	S. Riekes & Sons
Atlanta, Ga.	H. Smith Bottle Supply Co.
Baltimore, Md.	Atlantic Glass Co.
Boston, Mass.	S. H. Ansell & Sons
Brooklyn, N. Y.	J. Rabinowitz & Sons, Inc.
Buffalo, N. Y.	Empire State Bottle & Barrel Co.
Buffalo, N. Y.	Prince Rubber Co., Inc.
Chicago, Ill.	Continental Glass Co.
Cincinnati, O.	White Container Co.
Cleveland, O.	L. S. Kaufman & Sons
Columbus, O.	Ohio Container Co.
Dallas, Tex.	S. Riekes & Sons
Des Moines, Ia.	S. Riekes & Sons
Detroit, Mich.	M. Jacob & Sons
Jacksonville, Fla.	Smith Bottle Supply Co. of Jacksonville, Inc.
Kansas City, Mo.	S. Riekes & Sons
Louisville, Ky.	Peter & Co.
Los Angeles, Calif.	S. Riekes & Sons
Memphis, Tenn.	Wurzburg Bros., Inc.
Milwaukee, Wis.	W. B. Bottle Supply Co.
Minneapolis, Minn.	S. Riekes & Sons
Minneapolis, Minn.	Twin City Plastic Package Co.
Oklahoma City, Okla.	S. Riekes & Sons
Omaha, Neb.	S. Riekes & Sons
Philadelphia, Pa.	Zuckerman & Honickman, Inc.
Pittsburgh, Pa.	Samuel Mallinger Co.
Rock Island, Ill.	S. Riekes & Sons
St. Louis, Mo.	Northwestern Bottle Co.
San Antonio, Tex.	S. Riekes & Sons
San Francisco, Calif.	S. Riekes & Sons
Syracuse, N. Y.	Empire State Bottle of Syracuse
West Hartford, Conn.	Industrial Safety Supply Co.
Wichita, Kan.	S. Riekes & Sons

Plax distributors can help, too, on private molds and as consultants on printing, dispensing devices, etc.

POLYFLEX® by PLAX

Plax Corp. — P. O. Box 1019 — Hartford, Conn

Here are some practical short cuts to the efficient handling of a powdery, hygroscopic product. This article reviews a number of the procedures in effect at Horlicks Corporation to assure correct product delivery, mechanized filling, centralized control of the lines, and the avoidance of breakage or spillage within the machinery units. It also emphasizes techniques conducive to rapid change-over from container to container.

Production line handling and filling of powdery products

Faced with the special problems of a powdery, hygroscopic product, Horlicks Corporation, Racine, Wisconsin, operates a battery of packaging lines using equipment and procedures developed to meet these critical needs. Focal points of the operation include closely controlled filling techniques and special procedures designed to avoid spillage of product during ensuing phases of the operation. Although using a number of items of standard machinery, the Horlicks plant has a variety of equipment specially built for this operation.

Outside the packaging line room, empty glass jars arrive in reshipper corrugated boxes. Upon being depalletized, they go on a set of conveyors that delivers them through a wall opening to the start of the packaging line. Here an attendant dumps them on Horlicks' specially built device for handling double-tiered cases. This provides two platform levels for the sliding of jars — once the attendant dumps a case.

Dumping Two-Tier Cases

At the start of a dumping cycle, he dumps a case onto a depressed wood platform and removes the case, leaving two tiers of glass jars. When he does this the top tier is in line with the wood platform of the unscrambler. He merely slides these jars onto the unscrambler table and pushes them to the rotary unit. He next removes the partitions and separators (which go back into the corrugated box) and actuates a foot pedal.

This causes the case-holding platform to rise so that the second tier is in alignment with the horizontal surface over which jars move on the way to the rotary unscrambler. The foot pedal actuates an air cylinder which provides the elevating movement. As soon as the second tier is dumped, he actuates the unit to return the platform to the lower level — to be in position for the top tier of the succeeding case.

The Horlicks plant engineers devised the rotating table. A special feature is a vertical belt around its center area. This assures a continuous feeding of jars through the unscrambler. It also uses the angled stationary metal guides typical of many unscramblers, but the belt assures the movement of jars through the unscrambler.

This equipment is built to feed 75 jars a minute at the regular or normal rate of production. Leaving the rotating unscrambler table, the

empty jars move down a chain conveyor in single file. Meanwhile, the attendant puts the partition and divider back in the empty reshipper and places it on a skate conveyor leading to the other end of the packaging line. At this latter point the empties are repacked with filled and cartoned glass jars.

Air Cleaning Of Jars

While on the single file, table top chain conveyor the jars go through an air-cleaning action. Just before reaching a twister which inverts them 180 degrees, the jars pass over a shaker or vibrator section of the conveyor. This shaking action jars loose any foreign particles that may be inside a jar. Following this action the jars move through the twister which turns them the 180 degrees. While the jars are riding in upside down position, they are subjected to air from jets positioned underneath them.

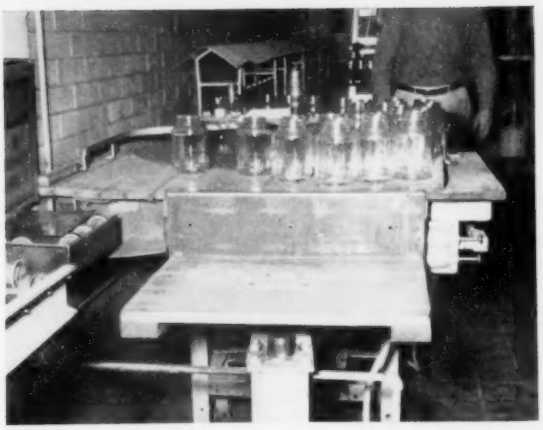
This air is supplied from the main plant air line. However, it is filtered before being blown into the jars. Following the air cleaning action the jars are inverted again 180 degrees, thus resuming an upright position for movement to the filler.

Just before reaching the battery of filling equipment, the jars divide into one, two, or three files, depending on how many fillers are in use at a given time. A special feature of this station of the line is a rotating rod which has a straight shaft. Vertically rotating, this prevents the empty jars from binding at the point of transfer where the files of jars fan out. There is a very low speed motor which runs just fast enough to keep this rod turning.

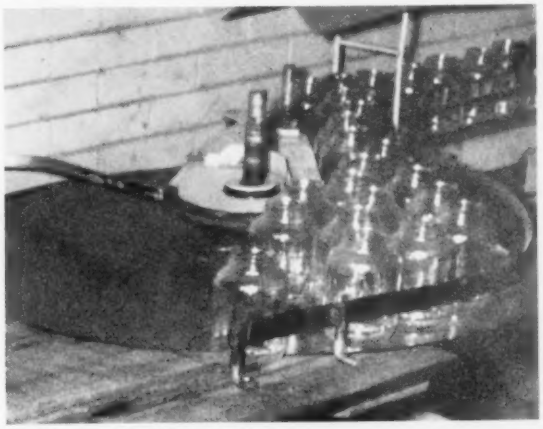
Correct Product Delivery

A major feature of the Horlicks packaging line operation is the delivery of its malted milk product to the battery of filling machines. The processing of the product prior to filling makes a significant contribution to the successful filling of the material. Having a constant flow is important with such a product.

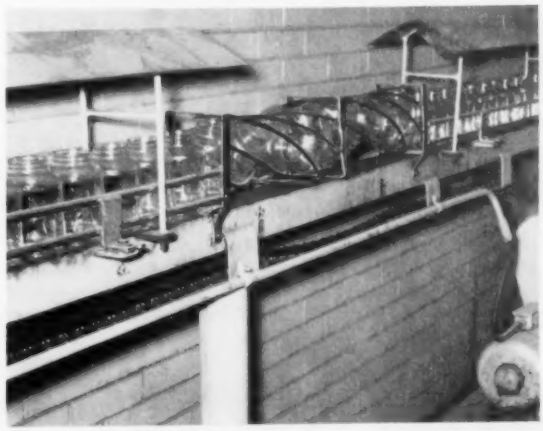
Horlicks engineers stress the advantage of having a large volume



1. Specially-built equipment for handling double tiered cases has a table that rises upon actuation—to transfer the bottom or second tier. In this way each tier is lined up for the expeditious sliding of jars onto unscrambler.



2. Rotating vertical belt around hub of unscrambler disc assures continuous feeding of jars through this unscrambler. Although angled stationary metal guides contribute to jar movement, the moving belt assures a jam-free passage of jars.



3. Just before going through twist, jars pass over a shaker or vibrator section of conveyor—at left. This shakes loose any foreign particles that may be inside a jar. Once inverted, they are subject to air blasts from jets underneath conveyor.

"COMPAK will save us $600,000.00 in packaging costs each season..."

says Mr. James H. Bryce, General Manager,
Diamond Walnut Growers, Inc.

27 completely automatic Hayssen COMPAK machines package over *one million one hundred thousand* packages of Diamond Walnuts *a day* in their new Stockton, Calif. plant.

Here are a few of the hundreds who have found COMPAK best fills their needs for flexible packaging.

CRESCENT NUT & CHOCOLATE CO. • FISHER NUT CO.
GEYSER FOODS • GORDON FOODS • H. H. EVON
JEWEL TEA • KELLING NUT CO. • PEANUT SPECIALTY
PEANUT PRODUCTS • SHEDD-BARTUSH FOODS
SUPER-VALUE STORES • TOM HUSTON PEANUT CO.

• The choice of Compak was made by Diamond Walnut after years of research and testing all available methods of packaging. The Compak was the overwhelming choice because of its simplicity, efficiency, and overall dependability. The entire production in flexible packages must be produced on the Compak machine in a relatively short period to meet a highly seasonal market. The packaging of 1,100,000 packages daily, with one-nut accuracy demanded the Compak to meet these exacting requirements.

• Let us show you how perfectly COMPAK will fit into your operation for the greatest efficiency, economy and flexibility in automatic packaging. Write today for our new COMPAK brochure.

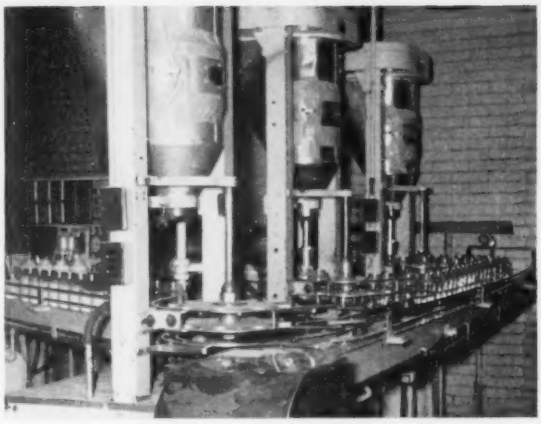
HAYSSEN

MANUFACTURING COMPANY • Dept. PE3 • SHEBOYGAN, WIS.

first in Automatic Packaging Since 1910

Albany • Atlanta • Boston • Chicago • Dallas • Denver • Detroit • Houston • Jackson, Miss.
Los Angeles • Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto

For more information circle No. 221 on Reader Service Card



4. Jars at far right fan out into one, two, or three files depending on how many of these fillers are operating at a given time. These machines use vacuum and atmospheric air to fill the jars. Inrush of atmospheric air compresses product within jar.

5. Centralized control panel permits operation of an entire packaging line from one point. Such one-spot control contributes to an efficient flow-through of work from one end of the line to the other. Supervisor also does check-weighing of jars.

of product, ranging from three to twelve tons, in the hoppers which lead to the filler. Another major point is to have a constant blend. All mixing is done in advance. This means that substantially all of the air is out of the product before it moves to the filling hoppers.

Developing the correct angle of flow and getting a proper system of baffling was a major difficulty. The plant has learned that the angle of piping must be at least 60 degrees in order to flow. The engineers have adjusted the baffles to get an even flow without packing.

A special problem with a hygroscopic product such as malted milk is that of its bridging in the hopper. This is particularly a difficulty when some moisture is present. If bridging takes place due to the presence of moisture, there can be a jamming of the product flow leading to the filling hopper.

Mechanized Filling

The fillers used represent the Horlicks modifications of Stokes & Smith filling machinery. The plant has rebuilt these basic machines to provide a mechanized filling operation. Each machine is set to fill 37 jars a minute. This rate of speed is constant for all products and all container sizes. Rather than increase or decrease the speed to meet a variation in container size, the plant increases or decreases the nozzle or orifice opening used in the filling operation.

Nozzle diameter varies with the size of container. Use of a smaller opening means a harder pack of product. With a heavy product it is necessary to increase the nozzle size in order to get less weight into the jar.

The filling action uses a combination of vacuum and atmospheric air. During the filling cycle a star wheel indexes each jar into filling position. In a normal filling operation on one-pound jars of malted milk, the machinery uses five to six inches of vacuum.

With the use of this vacuum it is important to get a tight fit of the jar prior to the fill of product. Once a jar goes into position, the vacuum exhausts the air and then draws down the product into the jar from the filling hopper. As soon as the vacuum breaks, the machine holds the jar in place so that the inrush of atmospheric air can pack down the product.

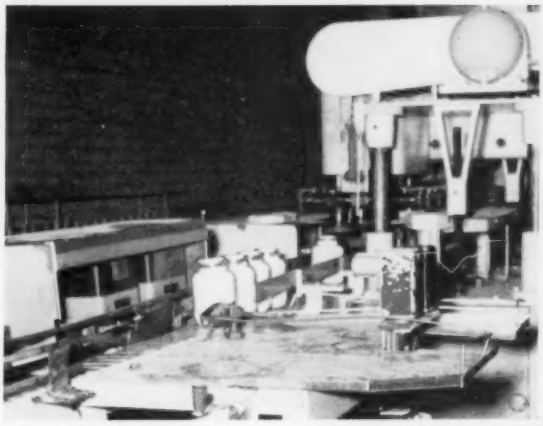
If, because of improper placement or for any other reason, the vacuum cannot get into the jar, there is no actuation of the filling mechanism and no drawing down of the powder. At the completion of a fill the atmospheric air acts as a hammer to pack down the product and to give a level, uniform appearance to filled containers. The machinery itself can fill to a tolerance of closer than plus or minus 1/16 of an ounce.

Centralized Line Control

Another major feature of this packaging line operation is the centralized control panel which is regulated by a man located just outside of the filling machinery area. He check-weighs the filled jars of product on a spot basis and uses push-button controls to regulate the filling operation. By means of his controls he adjusts the fill; he brings up the vacuum to increase the weight and decreases the vacuum to cut the weight being filled. He can regulate the equipment plus or minus one ounce with these controls. If it becomes necessary to make a greater adjustment, he will check the machinery itself. This is a very delicate control because a 1/16 inch movement on his control can change as much as 3/4ths of an ounce of weight in the filled container.

A special problem is that the product varies due to external conditions. The ingredients vary with the milk used and these variations arise at different times and seasons of the year. In other words, regardless of the uniformity of processing, there are variations in the density and weight of the malted milk being filled and the men in charge of the control operation must be alert to these variations in order to get a

6. Key control point is the regulation of filling vacuum. A normal operation calls for five to six inches of vacuum. If check-weighing reveals underweight jars, the attendant increases his vacuum. If weight reduction is necessary, he decreases vacuum.



7. Automatic ejection of improperly capped or uncapped jars is an important point of this packaging line. Since jars receive labels in horizontal position by a roll-through action, it is imperative that jars are properly capped to avoid spilling contents in labeler.

uniformity of fill on the packaging line.

This same control panel has controls for all other machinery on the line and permits centralized supervision of the entire operation. The plant engineers regard this one-spot control as highly advantageous to an efficient flow-through on the packaging line.

Capping Of Jars

Meanwhile, the filled jars index out of the filling machine by means of the same star wheel that indexed them in. They move past the check-weighing station and go to the capper.

Prior to being capped they pass through a machine which applies a film of glue to the top lip surface of the jar. As soon as each jar gets its glue application, it moves through the automatic capper. This operation includes a cap-tightening station as well as a cap-application unit. The seal paper to which the glue on the jar adheres is pre-positioned inside of each cap. This is a straight-line capper and takes its flow of caps from an overhead supply hopper.

Leaving the capper, all jars pass through a unit that has two electric eye controls. One is set to spot any cap that is not straight, is out of line or ajar, or otherwise improperly positioned. The other electric eye is set to detect a jar with no cap.

The machine has a solenoid action so that an improperly capped jar or one without a cap is mechanically ejected from the chain conveyor line and is pushed out to a table or platform without stopping the line. The complete filling and packaging line is equipped with a series of micro switches so placed ahead of each machine that should any obstruction occur, the flow of bottles is stopped until the obstruction is removed, when the complete line again starts in order of sequence.

Final Line Operations

Filled and capped jars go through a standard Burt roll-through type labeler, following which they are again uprighted and go through a cartoning operation. The plant rebuilt its Jones cartoner so that the line may handle jars that go into cartons as well as those that go into cases without cartoning. In other words, this permits use of the equipment for both export and domestic packaging at the same time — domestic jars receiving no cartons.

Prior to the cartoner there is a Superior marking code-dater through which the flow of jars moves. There are four girls at the cartoning station, two to handle the cartoning operation and two to handle the repacking of the reshipper corrugated boxes in which the empty glassware originally reached the plant.

Filled cases discharge to a powered conveyor and go through the case sealing operation. The packaging lines are arranged so that any of the output can feed to either of two Ferguson case sealers. Once sealed, cases are conveyed out of the packaging line area and go either directly to a rail car for shipment or to the storage area, pending departure from the plant.

Controlling Line Movement

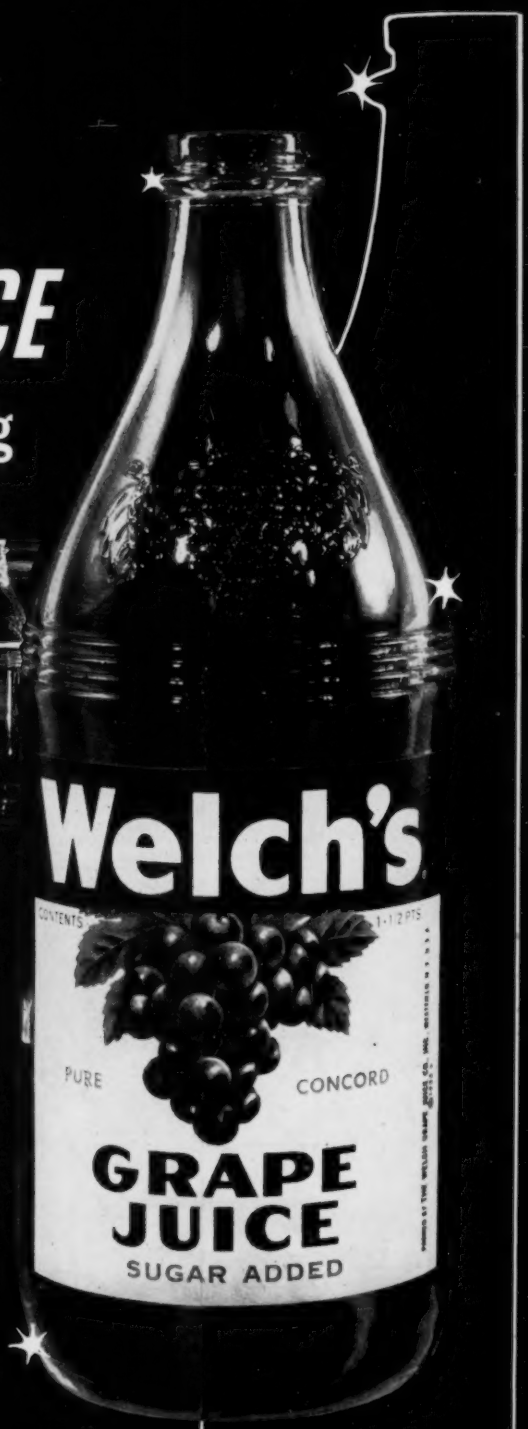
Another significant feature of the packaging line operation is the use of solenoid controls all through the line. These are fixed so that each one shuts off the area of the line next involved. For example, a solenoid at the filler shuts off the flow of filled jars to the capper; one at the capper shuts off the flow to the labeler, and so on. In this way, a shut-off takes place in stages all the way back.

Similarly, a shut-off beyond the labeler stops the line all the way back to the filler — doing this in stages as noted. Likewise, when the plant clears a jam the line starts up in the same stages in which the stoppage occurred. But for all practical purposes the start-up is simultaneous. Further, it takes place automatically once the forward or otherwise delayed section of the line is restarted.

The plant has engineered its system of controls so that no jars stop

For more information circle No. 222 →

New, *INVISIBLE*
SILICONE SURFACE
speeds bottling, packaging



You just naturally bottle and package faster, more economically when you use glass containers coated with the DOW CORNING SILICONE SURFACE. The greatly improved surface lubricity added by the invisible silicone film makes it possible to process bottles faster with less wedging, fewer jam-ups as containers are routed through filling and packaging equipment. What's more, the silicone film reduces bruising, scratching and breakage . . . adds new durable sparkle to glass containers.

Welch's® and many other brand name bottlers and packers now specify a Dow Corning Silicone Surface on all disposable and returnable glass containers. All Welch 4, 12 and 24 ounce Grape Juice bottles are silicone coated. Why not test this new production aid in your own plant? Most container manufacturers offer silicone treatment at little or no extra cost.

for more information, write

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

Good news for users of tape

Here's the latest idea in sealing cartons... the DIAL-TAPER. You dial the length of tape and the DIAL-TAPER does the rest automatically ... measures tape accurately, moistens tape with warm water and cuts off clean.

Users report "up to 50% saving in TIME, 25% saving in TAPE, plus stronger, neater package. Tape sticks tight with one pass of the hands." Used by U. S. Government, Ford, General Electric, all types of business.

For free booklet DT-5 write to Marsh Stencil Machine Company, Belleville 34, Illinois. T-23

Circle No. 223

in or under a machine. The solenoids are set up *outside* of the various machines. This type of arrangement makes a major contribution to the maintenance of clean conditions on the line and to the ease of clean-up between runs.

Avoid Product Spilling

For example, there is no spillage of product in the filler because of the way the vacuum usage is arranged. If a jar is not in registered position for the fill, there is no discharge of product. The jar has to be correctly spotted for the vacuum to actuate.

Use of the electric eye equipment precludes a filled but improperly capped or uncapped jar from entering the labeler. This is important because if a jar of malted milk should spill in the labeler, it would take 20 minutes to clean it out. This is important because the labeler is the roll-through type where jars are labeled horizontally rather than vertically.

Ease of clean-up and change-over from one container to another is a special feature of the line. Because the Horlicks plant packs several sizes of containers on each line it has designed its equipment for quick change-over from one size to another. For example, the jar twisters have been designed so that they can be put in and taken out almost instantly. This involves a snap-in type of construction.

Ease Of Clean-up

Another feature contributing to ease of clean-up and change-over is that the equipment is exposed as much as possible to facilitate easy access to its working parts and change members. As a result, the skilled plant mechanics can make a complete line change-over in less than two hours. They could not do this if it were not for the positioning of the equipment and the accessibility of key parts.

Use Air, Vacuum

The line also has been designed to facilitate sanitation and quick clean-up. Because the operation runs 24 hours a day, it is not possible to wash down the equipment daily. This washing is confined to a four hour clean-up once a week. However, at the end of each shift, crew members dry clean the entire line, using a combination of air and vacuum to remove all traces of product particles from the line. But since the arrangement of the line is such that no jars are stopped within machines and that no jars may be tipped within a machine, there is scant opportunity for product to spill. All of this simplifies the clean-up job of the plant crews.

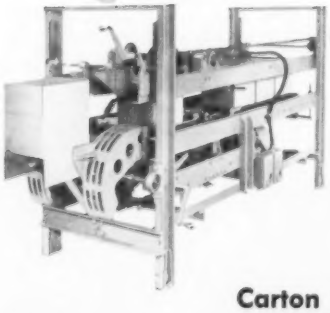
Solenoids Vital

All important, however, is the system of solenoids which control the movement of product and containers through the line. These not only provide for automatic stopping and starting of different units of the line but also enhance the centralized control because the equipment may be regulated from the control panel, located just outside the filling machinery area.

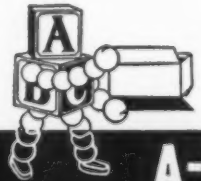
SHORTER! Narrower!

A-B-C *Junior* Case Sealer

- A REAL COST CUTTER!



Brings new efficiency to cramped packaging quarters. Fast, automatic, trouble - free. Carton jamming virtually eliminated. Three semi-automatic models fit most case sizes. Write today for details—floor plans and specs.



A-B-C PACKAGING MACHINE CORP.
TARPON SPRINGS, FLORIDA

FREE

The facts about BLISTER and VACUUM CONTOUR PACKAGING

This valuable folder clarifies "blister" and "skin" packaging—and describes efficient heat-sealing adhesives for the attachment of these packages. Proxseal® adhesives provide an "all over" seal to assure perfect protection for any contents. Write us for "Blister Seal Folder"—there's no obligation or charge.

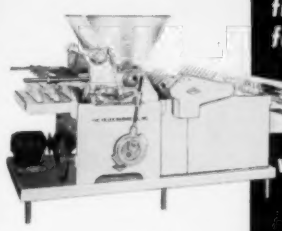
WRITE OR PHONE US TODAY

CHICAGO 32
Virginia 7-4800

PAOLI, PENNA.
Paoli 4141

PYROXYLIN PRODUCTS, Inc.

August, 1957 For more information circle No. 225



GEYER ten line piston filler with separate motor driven agitator, rollover, cleaner and automatic feeding device

fill your products faster at LOWER operating cost with the GEYER TEN LINE FILLER

You can fill your semi-liquid and semi-solid products faster and more economically with the GEYER ten line filler. This sturdy unit offers operating economies no other filler can offer plus:

- filling speeds up to 200 containers per minute
- versatility of products handled including food, dairy, paint and chemical products
- simplicity of operation
- versatility of containers handled — from 2 oz. to gallon containers
- easy cleaning, fast change-over
- positive, accurate filling
- sanitary construction around the filling zone

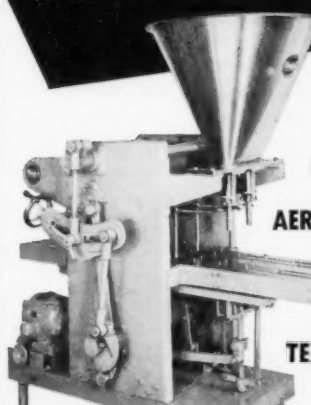
Write, wire or call for more details on the GEYER ten line filler or our other fillers to meet the needs of the small and large packer.

THE FILLER MACHINE CO., INC.
12 PENN AVE., ROCKLEDGE, PHILA. 11, PA., PIlgrim 5-0170
the original builder of Philadelphia piston fillers

For more information circle No. 226

TAILOR-MADE for filling

COSMETICS
PHARMACEUTICALS
AEROSOL INGREDIENTS
LIQUID SOAP
HEAVY TEXTURED PRODUCTS



TYPE 195

by Hope — ESTABLISHED SINCE 1908

Builders & Designers Specializing in Filling Machines for Over a Quarter of a Century.
Write for Literature

HOPE MACHINE COMPANY
9400-80 STATE ROAD • PHILA. 14, PA.

For more information circle No. 227

A currently favorite tool of packaging management is the use of a packaging committee. However, there are many different types of committees and just as many degrees of effectiveness. A notable example of capable and efficient management by committee is that of Gerber Products Company. This article tells how this committee works and how it combines a realistic number of members with a widespread sharing of information.

Making a packaging committee an effective management tool

Since virtually every packaging decision involves a number of departments within our company, a packaging committee is a logical and natural tool of packaging management. At the same time, we are keenly aware of the many pitfalls traditionally inherent in the pursuit of mangerial action by committee. Therefore, we devised a method which combines the principal benefits of the committee process with an avoidance of the dangers and vulnerabilities that frequently plague the committee approach.

In a nutshell, our approach uses (1) a small (but representative) committee; (2) a thorough sharing of committee minutes with every interested department and executive and, (3) adequate committee preparation — including personal consultation at all areas and levels of the company structure.

Basically this committee is a study and recommending group. It reviews a variety of problems or of choices and recommends a course of action to management. It has five members who represent production, sales, purchasing, advertising, and research. However, committee minutes go to as many as thirty people, including all members of top management and all top line production supervisors.

When And Why It Meets

It meets both regularly and at the call of its chairman. Any member of the committee may ask for a meeting. However, an important feature of our committee arrangement is that our meeting interval is based on experience. This, in turn, depends on the need. A series of package changes may dictate a close sequence of meetings. And we try to insure enough meetings to accomplish the job.

Complaints concerning package deficiencies such as wrinkled or scuffed labels and the like usually reach the sales department from either our salesmen, customers, or dealers. As a result, the sales department representative usually has a number of requests and suggestions concerning material to bring before our packaging committee.

Other proposed changes may originate with the purchasing department. For example, a downward price trend in one material, accompanied by an upward price trend in another material may prompt the purchasing department to suggest that the packaging committee consider the less costly material. The five members of the committee search out their respective areas concerning new packages or packaging problems, to present at such a meeting.

Members Keep Up With Trends

Each committee member finds it important to keep abreast of the trends in his particular field — and especially concerning future developments. For example, it is important to know about new packaging machinery not presently applicable to our operation: Subsequent changes in our packaging procedures or in packages themselves may make such machinery useful to us.

Likewise, any source in the company may have a problem or possible improvement to suggest to a member

of the packaging committee for discussion. Because of the small number of members, we make special efforts to be sure that these people are very alert to the problems and needs of others in the company. For example, the superintendents and operating foremen have adequate opportunity to express their views on a given machinery or production problem. A plant manager thus relies on the experience of those "on the firing line" as an aid in reaching his own decision concerning material to present to the committee representative for consideration by the committee.

Value Of Committee Minutes

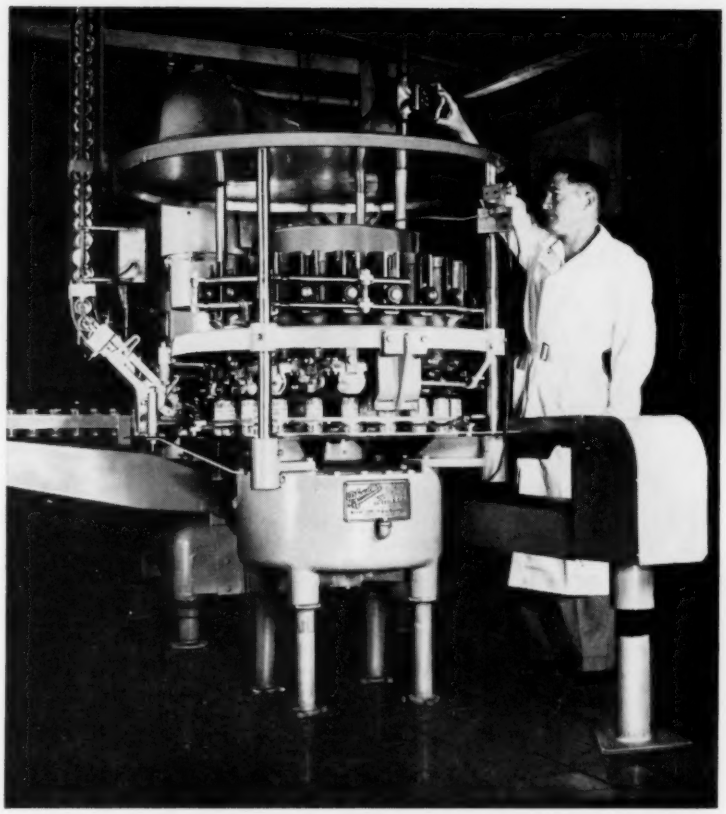
Our system of committee minutes is an important factor in assuring proper continuity and adequate follow-up to committee projects. For one thing, the minutes of a committee meeting often fix the agenda for the succeeding meeting. Further, since the minutes are widely circulated, all interested parties within the company are kept fully informed concerning packaging recommendations made by the committee.

The minutes for a given meeting usually run one page or at the most, one and a half pages in length. The chairman writes the minutes as the meeting progresses and sets down the conclusions reached — noting the facts leading to the conclusions. He gets either the concurrence of the others present or their objections, if any, and enumerates these in the meeting minutes.

In some instances, a note in the minutes is nothing more than a brief indication of the status of a particular project. We find it sound practice to issue a status report every two or three months on all outstanding packaging projects, whether active or not. In placing all this in the minutes, we find it helpful to be specific and indicate names — as an aid to fixing responsibility. A note might read thus: "Mr. Oren is to have an answer re the new high speed filling machinery for x line in 30 days."

Keeping It Practical

Our goal in the use of committee minutes is to provide adequate infor-



Just one of many Pfaudler fillers now filling semi-viscous products like frozen citrus concentrate, baby foods, evaporated milk, dog food, apple sauce and also lubricating oils.

Now, accurate fast fill . . . without product spill

Used to be you had to sacrifice *something* to get speed when you filled foods or other products.

With the Pfaudler rotary piston fillers, though, you can choose filler speeds from 40 cans a minute to as high as 1000 cans a minute, and still get the extra features you could expect only on a custom-made machine a few years back.

FEATURES LIKE THESE:

Accuracy to $\frac{1}{10}$ ounce. Rated to fill within specified tolerances—usually within $\pm \frac{1}{10}$ ounce. No container—no fill control on every machine.

Sanitary, easy to clean. One man cleans within 30 minutes, even on largest machines. Slide one-piece valves out. Lift simple, ring-free pistons out. That's all.

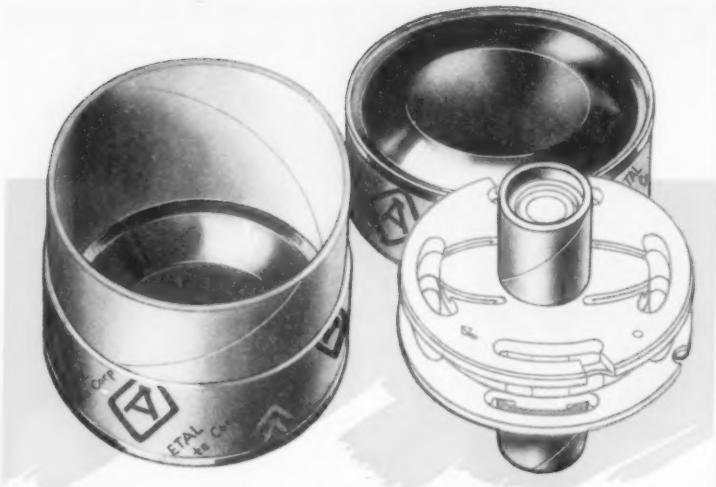
Low maintenance costs. Just four primary wearing parts—piston rollers, valve rollers, valve trip cams and wear pads on valve locks . . . each part durable, low cost and easy to replace.

There is a range of five Pfaudler fillers to meet your viscous and semi-solid liquid needs. Write for Bulletin 911 for specifications. For free-flowing liquids, there are the Pfaudler KING FILLERS—Bulletin 843. And for Rotary Piston Oil Filler, write for Bulletin 878.

Pfaudler

THE PFAUDLER CO.

ROCHESTER 3, N.Y.



PROTECTION for an intricate part!

Cleveland Containers save you money

in packaging large parts as well as smaller items.

Above is a metal end telescope container designed to package a rotary group for a hydraulic oil pump. Both ends of the shaft are further protected with paper tubes.

This style container has many uses for both heavy and light parts.

SHOULDERS to lean on!

Illustrated at the left is an all-paper container with a die cut disc fitted into each of the paper cap ends. This is to accommodate a quantity of thin gaskets assembled over a paper tube for convenience in merchandising and protection in shipping.

Suitable for such items as rubber gaskets, washers, shims, rubber or wire coils.

WRITE for our Packaging Brochure.

Why pay more? For quality products . . . call CLEVELAND!

THE

PLANTS AND SALES OFFICES: CLEVELAND, DETROIT, CHICAGO, MEMPHIS, LOS ANGELES, PLYMOUTH, WIS., JAMESBURG, N. J., OGDENSBURG, N.Y. • ABRASIVE DIVISION CLEVELAND

CLEVELAND CONTAINER COMPANY

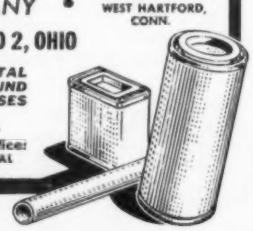
6201 BARBERTON AVE., CLEVELAND 2, OHIO

SALES OFFICES: NEW YORK CITY, WASHINGTON, D. C., ROCHESTER, N. Y., WEST HARTFORD, CONN.

• ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS • SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LTD.

Plants & Sales Offices: TORONTO AND PRESCOTT, ONT. Sales Office: MONTREAL



mation concerning the recommendations and the basis of reaching them, without letting the minutes become cumbersome or verbose. This is particularly important because the information contained must be helpful to people not present at the meeting and who depend on what they read in the minutes.

In preparing for a forthcoming committee meeting, the members find it helpful to review the minutes of the past meeting. This reminds them of further investigation or work that each must do. As an indicator of projects still open, the minutes quickly remind the committee members of the questions likely to be asked of each.

The length of a committee meeting depends purely on the particular agenda before it. It may meet to reach just one decision — for example, the approving of some label change for the printer. At other times a committee meeting may occupy two or three hours. A more typical committee meeting is about one to one and a half hours in length.

It works out quite well to have committee members bring their information to the committee meetings for oral presentation. Many questions can be answered just that way. Often a member can answer a question on the spot. In other instances, it may be necessary to do some investigating to get the answer. Questions involving other plants of the company may entail correspondence with the respective plant managers.

Conversations And Calls

Committee members when preparing for meetings or when investigating subjects already under discussion make fullest use of face to face conversation and of telephone calls. When letters or memoranda are necessary, they are kept as brief as possible. At the same time, there is no element of casual or careless handling of information.

Wherever possible, committee members try to get firm answers from others with whom they are discussing projects. Where everyone knows that his answers will be passed along to others, there is a general tendency to be more careful and specific in an-

swering questions. If a man does not have an answer, he simply says he does not have it, although he usually gives some idea of when it will be available.

Probably the keystone of our successful use of committee management is the confidence which the committee has inspired from the company in general concerning its recommendations. Should the solution to any problem turn out to be unsound, the matter is always open to reconsideration. However, our committee makes every effort to handle problems presented to it carefully, fairly, and expeditiously the first time they are up for consideration.

Settling Of Differences

The settling of differences within our committee is done by a vote of its members. At the same time, a great deal depends, for example, on the source or basis of any negative vote. If four committee members agree to make some packaging change and the production representative, for example, says that doing it would seriously interrupt the work of the plant or even prove unworkable, they would not overrule him.

General and top management executives are keenly aware of the weight which the views of technical and operational people deserve. Similar situations arise between research and production. However important the production executive might regard a given packaging material, he would defer to the views of the research executive if told that the material was technically unsuited to providing the requisite shelf life.

It is the standard practice of our organization to rely on the technical experience of our specialists to the fullest extent possible. Top executives such as the vice president in charge of marketing are keenly aware of the significance of the opinions of our technical and operational group and are extremely reluctant to overrule them in matters calling for their special knowledge and judgment.

Going To Top Management

Obviously, some packaging questions merit the attention of top management. Our company has an execu-

MR. PACKAGING ENGINEER:

ARE YOU REALLY SURE OF THE QUALITY OF YOUR PACKAGING MATERIALS?

GUESSING IS A LUXURY YOUR PRODUCT CANNOT AFFORD. DO AS SO MANY OTHERS HAVE DONE. TAKE THE INITIAL STEP IN ESTABLISHING A QUALITY CONTROL PROGRAM BY MAKING YOUR OWN BURSTING STRENGTH TESTS.

Write today for information and prices on a Mullen Tester to meet your own requirements. There is a tester to fit your budget.

B. F. PERKINS & SON, INC.
MULLEN TESTER DIVISION
HOLYOKE • MASSACHUSETTS

Manufacturers of Mullen Testers for Over 60 Years

For more information Circle No. 230 on Card

NEW MODEL WITH INSTANT PACKAGE SIZE ADJUSTABILITY from 3"x4" to 5½"x12"

WRAP-ADE
UNIT PACKAGER
WITH
CONVEYOR FEED

PLASTIC ITEMS

HARDWARE

PREMIUMS TOYS

This manually fed conveyor is the ideal feeding system for packaging small textile products, flat food items, toys, bandages, or any other reasonably flat small product.

OTHER MODELS AVAILABLE FOR LIQUID, TABLETS POWDERS, etc.

Wrap-Ade Unit Packagers perform an entire cycle of packaging operations including feeding, filling, forming and sealing practically every type of heat sealing materials. Photo Electric registration available.

Send us a sample of your product today for our prompt quotation

wrap-ade
MACHINE CO., INC.
Celebrating a Quarter Century of Progress in Packaging
83 VALLEY STREET, BELLEVILLE 9, NEW JERSEY
PHONE—PLYMOUTH 9-6150

tive committee to which decisions of the packaging committee may be referred. An interesting feature of the executive committee is that it has a varying membership. Typically it includes the president, the assistant to the president, the vice president for marketing, advertising manager, general sales manager, vice president for production, and general manager in charge of manufacturing — among others. The membership varies according to the particular project involved.

Those packaging committee decisions that involve day to day operational matters or minor package changes not meriting the personal attention of top management do not go to the executive committee. At other times there may be a major package change or some similar project underway in which top management is specifically interested.

Usually an officer such as the vice president in charge of marketing decides whether an executive committee decision is necessary. At the same time, he is the one who activates a change or program, whatever it may be, such as a package change, use of a new material, or installation of new equipment. He usually does this by a memo to all interested departments and executives.

Value Of Groundwork

In evaluating the work of our packaging committee, it is difficult to overestimate the importance of the groundwork done by committee members prior to meetings. This is particularly important in the case of technical and operational matters. Frequently it becomes necessary to consult various departments within the company for both facts and opinions regarding some project.

It may be necessary to take that problem to the equipment suppliers to find out the limits, speed, possible sizes, and operating details of existing equipment. We may have to consider the development of special machinery. It may turn out that the equipment proposed is of such limited application that it is impractical for an outside supplier to build it. At the same time, it may be of sufficient importance to our organization to justify our building it ourselves. We frequently make equipment to serve highly specific purposes.

Company Organization

Closely related to the functioning of our packaging committee is the structure and function of our company organization in regard to packaging problems. For example, our assistant plant engineer has certain major responsibilities in the area of packaging operations. Normally he reports to the plant engineer, who in turn reports to the plant superintendent, and hence to the plant manager. He in turn reports to the general manager of manufacturing.

However, in packaging matters, the assistant plant engineer reports directly to the general manager of manufacturing. On paper this may appear to be a short circuiting of the management chain. In practice the relationship works out extremely well since its use is confined to specific

Packet ALL Powders

FOODS • DRUGS • CHEMICALS • COSMETICS • SOAPS

WITH THE

BFM Powder Formapak

FULLY AUTOMATIC LOW-COST PACKETING
— measures, forms, fills, heat-seals.

HIGH-SPEED
— up to 100 packets per minute.

ACCURATE AND ADJUSTABLE
— volumetric feed.

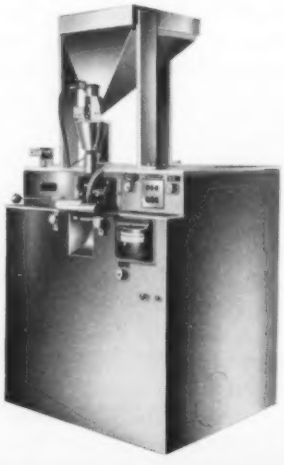
QUICKLY AND EASILY ADJUSTED
— for packet sizes from 2" x 2½" to 4½" x 5".

ELECTRIC-EYE REGISTRATION
— on both sides of packet.

COMPACT
— requires only 3' x 3' of floor space, 4' 8" overall height.

VERSATILE
— uses most heat-sealing papers, laminates, foils, glassines, cellophanes and filter papers.

for further information write to



BFM Automatic Packaging Since 1886

BROWN
MACHINE COMPANY, INC.
Division of Franklin Research Corporation
[illegible] MASSACHUSETTS

projects. Our assistant plant engineer may do a lot of study work on such matters as costs, layouts, new installations, alternative possibilities, capacities, expenses, in-plant changes, the availability of machinery, and similar things. Thus he furnishes specific packaging staff assistance to our general manager of manufacturing.

On the other hand, where he cannot give an immediate answer to some packaging query, or prepare one from sources within the company, he contacts (through the purchasing department) any supplier representatives whose participation in the problem might prove helpful. In this way he serves as the channel for focusing the assistance of outside sources on Gerber packaging problems.

At first glance it may appear that we take quite a few liberties with what otherwise would be a formal company organization structure. Probably a major reason for our being able to do this is that we keep everyone fully informed of what is being done. In this way no activity runs into difficulty because some key function was not brought into the problem in apt time. Also our system provides a concise and efficient way of letting everyone know just what the others are doing — and thinking about with regard to future developments and probable trends of direction.

Making one machine perform nine operations

(Continued from Page 27)

would require 20 operators and under the second setup, twelve operators.

A further advantage to setup #3 is space, since this setup requires very little more than that for setup #1. We refer to the space required for setup #1 at 30 per minute.

Plans For Future Operation

We know now that we have made some mistakes on this machine and even now have plans underway to construct a new one along similar lines, utilizing ten lanes and a planned output of 300 per minute. We plan to change the method of feeding and cleaning the bottles so that bottles can be fed by conveyor either from the floor below or the floor above.

We plan to apply the rings at a lesser angle than the 90° one now used, also to provide more individual adjustment to each lane and station to take care of bottle variations. The filling will be modified to get more uniformity and eliminate drip. We will increase the space between each station to make observation and adjustment of each point easier. The cap will also be applied at a flatter angle.

Perhaps air motors will be used for cap tightening instead of gears and shafts. A more positive bottle gripping device to prevent the bottle from rotating while the cap is being tightened will be provided. An improved and positive method of ejecting the completed bottles from the machine will be added.

We feel we have made definite progress with this unit and have proven the desirability of doing as many operations as possible on one machine without losing control of the package. We feel we have saved a considerable amount of space over more conventional methods of separate machines for each operation. We feel we have saved labor, and the cost of the equipment is less than individual machines would be to do the same number of operations. We like the idea!

Evaluation and testing of adhesives for transparent films

(Continued from Page 30)

a. *Impact tests.* A five-pound item was dropped the length of a 20" bag three times.

b. *Seal characteristics.* One-inch wide seals were separated in peel with an Instron tensile tester to study the seal during separation. This information was very useful in deter-

(Continued on Page 56)

ON ANY PACKAGING MACHINE

there is a place where

IMS SILICONE FLUID SPRAY

WILL CUT YOUR COST

Anywhere Any Packaging Material Tends to Stick . . .

IMS SILICONE SPRAY will cut your scrap and stoppage rate—Save You Money! Try it on your packaging line—you'll see why almost overnight this amazing anti-stick material has become a necessity in the modern high-speed packaging field!

PRICES: $ 2.00 Per Sample Can
$ 18.00 Per Unbroken Dozen
$197.40 Per Unbroken Gross

Still lower prices on larger orders shipped in one gross lots on any schedule you request.

Delivered FREE Anywhere in the U. S. A.

INJECTION MOLDERS SUPPLY COMPANY
3514 LEE ROAD • CLEVELAND 20, OHIO

Announcements of machinery and products

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card — we pay the postage.

Net Weigher

The Exact Weight Scale Co. announces a new automatic net weighing machine, Model 447-22-NW-1500,

designed for use in restricted overhead clearance areas. The machine consists of an even balance precision industrial scale, an air operated slide valve, a controller, and remote control station, which permits the machine to be operated as a fully automatic or as a semi-automatic device. The air operated slide valve, mounted on a storage hopper, maintains a minimum of overhead clearance. A special dust seal on the valve is operated by an air cylinder mounted on the front of the slide valve. The dust seal is designed to raise and seal the valve when the supply hopper is being filled. The scale employs an even balance lever system with a visual indicator and dial. Circle No. 1.

Flexible Packaging

Dobeckmun Co. announces the development of Metalseal, a new foil-paper combination designed specifically for carton overwrapping. Two kinds of Metalseal are available. Metalseal #1 is aluminum foil printed with the package design, laminated to paper that is coated with a blend of melted wax resin. It is not necessary for wrapping machines to strike through a tissue in order to obtain a good seal. Metalseal #2 is a combination of printed foil and paper with the melted wax resin blend applied to the foil only on the specific areas where the wrap is to be sealed. Again, during wrapping, a tissue strike-through is not necessary; the sealing material is right on the sheet. Circle No. 2.

Air Tacker

Swingline Industrial Corp. announces the development of Model 58, an air operated tacker which forms as well

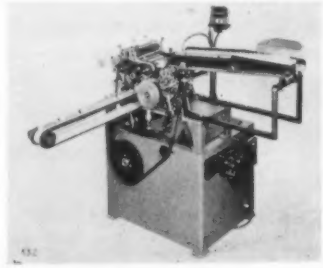
as drives a new staple with each squeeze of the trigger. It is fed by a continuous belt of straight precut wires. Each stroke of its air powered piston strips a new wire from the belt, shapes it into a staple, and drives it into the work. The tacker need not be swung into the work because it fully drives each staple so that it is flush with the work and does not protrude to endanger persons handling the package, Swingline says. The Model 58 air tacker forms and drives a heavy wire (0.020″ x 0.050″) chisel point staple having a ½″ crown and a ¼″ leg lengths. Circle No. 3.

Sealer and Trimmer

Carbert Mfg. Co. reports development of Model 1010, an automatic sealing and trimming machine for goods packaged in polyethylene bags. This machine forms a hairline continuous seal and trims off excess polyethylene beyond the seal at speeds of from 600 to 800 per minute. It features a horizontal conveyor, a simple backstop member which is the only adjustment required for changeover from one bag size to another, and an electric eye device which permits the bag to be sealed right up to 1/32″ of the contents of the polyethylene bag. Standard equipment will seal bags 4″ x 4″ to 12″ x 12″. Sizes beyond these dimensions can be accommodated with a conveyor width change. Model 1010 occupies a floor area 30″ wide by 12′ long, with the conveyor height at 36″. Circle No. 4.

Printing Machine

International Marking Machine Co. announces Model RASM, a printing machine designed for one color print-



ing of cylindrical pieces of small diameter. An output up to 15,000 pieces per hour may be obtained. The items are fed to the inclined table, from which they are automatically fed into the machine to be printed and then ejected on the side off a conveyor. Printing is done by the offset principle employing long-lasting metal plates. Circle No. 5.

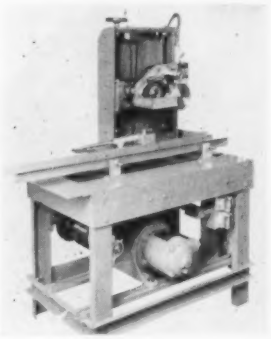
Hidden Thread Closure

Aluminum Company of America announces the development of the Alcoa Hidden Thread Closure, a new hidden thread aluminum bottle or jar cap which will neither crack nor break. The new product offers package designers clean outside lines for decorative possibilities. The Hidden Thread Closure is produced in two sizes, for

narrow or wide-mouth bottles and jars, and is available in various metallic and regular colors. Circle No. 6.

Package Printer

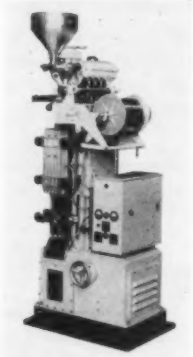
The Industrial Marking Equipment Co., Inc., announces its #602 flexograph printer, which can be used to



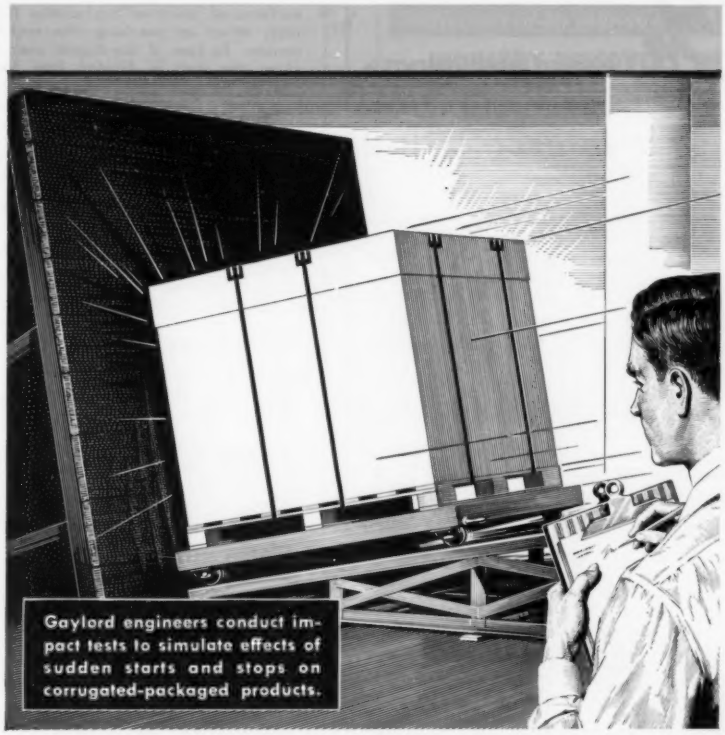
mark, date, code, or otherwise identify any square or oblong package or product. This printer utilizes an aniline printing system with a reservoir-fed adjustable printing head and it is adaptable for marking almost any size package. The open ink reservoir holds several hours supply. Chain driven, the #602 takes its speed from the speed of the conveyor line that feeds it — up to a rate of 60 units per minute. The feed into and out of the printer is completely automatic. Industrial Marking says this printer can also be furnished with an explosion-proof motor and controls for specific requirements. Circle No. 7.

Packet-Forming Machine

Hansella Machinery Corp. announces the Hansella 131, an automatic packet-forming, filling, and closing machine



which forms four-side fin-seal packets from a reel of any heat-sealable wrapping material, either singly or in tandem, and will handle liquids, semi-liquids, powdery, granular, or solid goods. When using the simplex sealing device, a rotary knife divides the web into two widths, which travel over a guide plate so that the interior


Gaylord engineers conduct impact tests to simulate effects of sudden starts and stops on corrugated-packaged products.

HOW PRE-TESTING CUTS SHIPPING DAMAGE

Your product packaged by Gaylord can take its first trip over the road of distribution inside our laboratories. As a member of the National Safe Transit Program, Gaylord conducts unsparing tests duplicating the actual hazards of shipment.

This is only one phase of Gaylord engineering research which helps reduce shipping losses in every major American industry.

Make sure your boxes are performance-proved before they get their travel orders. Call your nearby Gaylord engineer. He likes tough challenges.

Gaylord Boxes

CORRUGATED AND SOLID FIBRE BOXES
FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES
KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION • ST. LOUIS

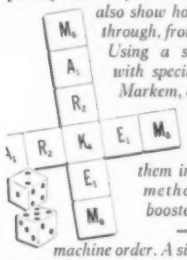
DIVISION OF CROWN ZELLERBACH CORPORATION

MARKED IMPROVEMENTS in

IDENTIFICATION AND DECORATION

Now you see it, now you don't . . . *sometimes characterizes marking done on Markem machines. This isn't a problem of fading, or wear and tear (our "Ink Lab" takes particular pains to see to that). Rather, it's where the marking* shouldn't *show normally, or where it's used only during manufacturing. An example of the first is putting a trademark on eyeglass lenses, using our 70AB machine and special "breath image" ink which is, as you might expect, visible only when breathed upon. The second type of "now you see it" marking is illustrated by production control numbering of radio tubes with a Markem 45AG machine, instead of hand stamping them. Numbers are removed and replaced by a trademark imprint when tubes are completed. Thus even "temporary" marking, done the Markem way, can be useful.*

Seven come eleven, and other games . . . *like the sporting goods story told here previously, are all part of "industry's marking requirements." They also show how Markem sees the job through, from machine to final mark. Using a standard 25A machine, with special fixtures suggested by Markem, one manufacturer is now printing one side of 15 dice at a time. Compared to leaf stamping them individually, the Markem method has cut costs and boosted output tremendously — resulting in a second machine order. A similar business is running up their score, printing game tiles 132 at a crack with a special 25A. Whether your business is games, drugs, electronics, textiles, shoes or another field — your marking problems have answers at Markem.*



From Belgium to Brazil . . . *languages, customs and clothes may be different, but all share a common requirement for identification decoration marking. Take pharmaceutical houses: in Chicago, New York and other U. S. locations . . . in Panama, Belgium, Brazil, Turkey and other spots around the world, Markem 45AE machines are imprinting batch and date codes on small cartons for drug items. Wherever your business is located, and whatever your marking needs, it may well pay you to see what Markem can offer. Ways to mark products, parts, packages — for decoration, identification or control — have been Markem's business for almost 50 years. Some good answers have been developed in that time — some that probably can help you.*

When writing, state size, shape, material of item to be marked; rate needed, color requirements, etc. Include sample if possible. This saves time, insures the right machine and method for your job. Markem Machine Co., Keene 35, N.H.

MARKEM

surfaces of the two cut widths face each other on reaching the sealing station. In case of the duplex mechanism, the web is divided into four widths to make two packages simultaneously. The machine handles heat-sealable films and film combinations in rolls up to 13½" wide with inner core 2¾" to 3". Using the simplex device, about 60 packets per minute can be produced, ranging in size from 2" to 6" in length and 1½" to 6"; the duplex device produces about 120 packets a minute, ranging in size from 2" to 6" in length and 1½" to 3" in width. Circle No. 8.

Vacuum Forming Machine

Auto-Vac Co. announces the Pressure-Vac, a new vacuum forming machine which utilizes pressures up to ten

atmospheres, in addition to vacuum. Packages made from Mylar polyester film, oriented styrene, high density polyethylene, cast acrylic, extruded, polyvinyl-chloride, and nylon can be produced with the Pressure-Vac machine. New direct contact heating of the plastic speeds up operating cycles and offers heating control and efficiency previously unobtainable, Auto-Vac says. Circle No. 9.

Sewing Head Attachment

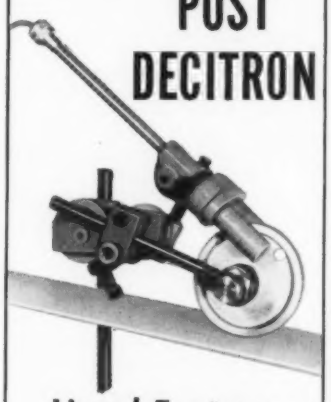
Union Bag-Camp Paper Corp. has developed the I & C Acto-Cutter, a new sewing head attachment which automatically starts and stops the sewing head and cuts the thread chain between bags. The attachment also makes it possible for one operator to easily perform the combined operation of carefully forming the bag tops and then feeding the bags into the sewing head. Thread tails are reduced to a minimum on the leading edge of the bag and to one inch on the trailing edge. The Acto-Cutter is available in two basic models and is designed for use on the Union Special 80600E Sewing Head. Circle No. 10.

Bag Handler

Frazier & Son reports development of new equipment to automatically handle a bag so that it is delivered to a filler and opened to receive the material. All that is required is to keep the bag hopper supplied with bags and the feed bin filled with material. A Whiz-Packer elevator conveyor delivers material to the Whiz-Packer volumetric filler which deposits the material into the bag whose mouth is kept distended until re-

MODEL LF-1

POST DECITRON



Lineal Footage Counter

Connected to any Post DECITRON electronic counter, the lineal footage device provides accurate measurement of paper, wire, rope, sheeted products, etc.

If desired, a predetermined length can be "set" into a Post preset counter and when the lineal footage device reaches this length, a secondary circuit (i.e. a slitter or marker) can be activated.

Dependable, accurate, maintenance free. Varied "beam hole", or wheel size will permit fractional footage counting, if desired. Write for bulletin LF-1.

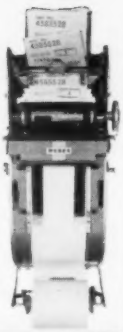
Decitron Electronics Products Division

POST

POST MACHINERY COMPANY

Beverly, Mass.

Cut costs on label printing and eliminate inventory problems



New Weber Dual-80 Label Printing Machine prints product and content identification labels at 105 a minute.

- Variable data can be changed at any time quickly and easily
- Dual-purpose—prints from rubber mats and stencils
- Completely automatic
- Cuts labels to size and keeps accurate count
- No bigger than an electric typewriter

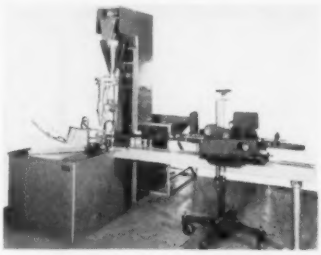
DUAL-PURPOSE, the Weber Model 80 Label Printing Machine, will print from Weber stencils as well as rubber plates. Printing head and ink fountain are quickly and easily detached without tools and stencil drum is substituted for printing shipping labels, packing slips and other small multiple forms.

Write for your **FREE** copy of our new Model 80 Bulletin which describes this unit in detail

Weber

WEBER MARKING SYSTEMS
Dept. 24-H
Division of Weber Addressing Machine Co., Inc.
Mount Prospect, Illinois
SALES AND SERVICE IN ALL PRINCIPAL CITIES

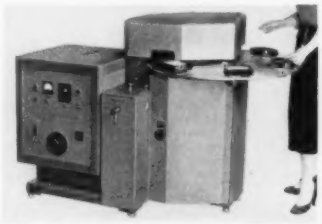
leased. The filled bag moves on a vertical conveyor to an Amsco Hi-



Speed fully automatic rotary sealer. Circle No. 11.

Bubble Sealer

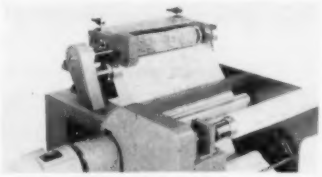
ERDCO Engineering Corp. has a high speed, automatic machine, the Clear-Pac bubble sealer, which pro-



duces transparent, plastic bubbles bonded to display cards. 4′ wide and 6′ long, the Clear-Pac machine has a dielectric heating speed that can be adjusted to produce from five to 20 sealed packages per minute. The moisture- and dust-proof bubbles can be made to a maximum 6″ by 9″ size. Package sizes can be changed in three minutes. Circle No. 12.

Printing Attachment

Adolph Gottscho, Inc., has a new single color flexographic printing unit, designed for easy attachment to any



paper, film, or foil winding machine. This unit is powered by connecting it to the variable-speed main drive of the parent machine, which assures synchronization of the printing operation with the surface speed of the web. It is made in widths to 72″ and printing repeats to 24″. This unit may be used to print cellophane, polyethylene and other plastic films, aluminum foil, and paper, Gottscho says. Circle No. 13.

Rediscovered by management

INDUSTRY DISCOVERS NEW TRICKS FOR FAMILIAR PAPER BAG

SOFT GOODS—

Faster to bag than to wrap. Towels are hand-folded, mechanically compressed, pushed into bag by plunger. Bag has a hole punched in bottom to allow air to escape. Label covers hole after bag is filled. Keeps dust out; identifies contents by size, stock number, etc.

TIRE VALVE PARTS—

Hexagon nuts, used to clamp tire valves to rims, are spread over a plate for cleaning, examination and counting. Plate is opened, releasing 1,000 nuts into bag. Filled bag is sealed with tape.

CIGARETTES—

A major producer uses these bags to hold 20 cartons for overseas air shipment. Saves freight, packaging costs.

VERSATILE PAPER BAGS can save money, provide more efficient packaging, handling, for your product. SEND FOR USEFUL BOOKLET, CP-6.

Commercial Packaging

union camp **UNION BAG-CAMP PAPER CORPORATION**

233 Broadway, New York 7, N. Y.

Industry literature available free

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card — we pay the postage.

Short Case Sealer

A-B-C Packaging Machine Corp. has a four-page bulletin describing its automatic short case sealer. Available in eight models, this machine is said to dry any commercial sealing glue quickly. Specifications and floor plans are included for these models, designed to handle cases from 6″ to 16″ wide, 4″ to 18″ high, and 8″ to 18″ long. Circle No. **101.**

Film Tube Packager

Mercury Heat Sealing Equipment Co. explains the operation of the "Verti-Pak" machine in a bulletin. It automatically forms a bag from heat sealing roll stock, fills, and seals it. This unit handles hardware, toys, textiles, candy, drugs, produce, etc., at speeds of 30 to 50 packages a minute. Circle No. **102.**

Versatile Wrapper

Package Machinery Co. describes Model Universal 6 wrapping machine in a current bulletin. Featuring a self-measuring paper feed which cuts off the correct amount of wrapping material for each item, this machine can produce up to 40 pkgs./min. This machine wraps goods on flat cards, trays, or in cartons within the following size range: 4″ to 16″ long, 2″ to 9 ¼″ wide, ⅜″ to 5 ¼″ high. Circle No. **103.**

Heavy Duty Portable Sealer

Packaging Industries makes a heavy duty portable heat sealer designated as Model 6 in a current bulletin. This unit is designed for sealing light and heavy duty coated or laminated barrier materials. Sealing jaws are 6″ long by ½″ wide and are air operated. Dwell time is adjustable from 1 to 10 sec. and controlled temperature ranges from 200 to 500 degrees F. Circle No. **104.**

Parts and Hardware Packaging

Packmaster Sales Co. has brochure describing three models of the "Packmaster." An automatic machine, it loads and heat seals packets with odd shaped products, such as parts, hardware, etc., in a variety of military and industrial packaging flexible materials. Speeds range up to 80/min. Circle No. **105.**

Cartoning and Overwrapping

F. B. Redington Co. has a comprehensive 40-page catalog illustrating and describing 18 different types of standard cartoning equipment, as well as many special machines for tablet counting and filling, banding, envelope filling, etc. Semi-automatic and fully automatic cartoners are listed with optional cellophane overwrapping machines. Complete packaging systems are available which set up cartons, load, and overwrap them. A wide range of products are packaged on these machines, including specialty foods, drugs, soaps, paper napkins, crackers, roll bandages, and film. Circle No. **106.**

Emulsion Brochure

Semet-Solvay Petrochemical Div., Allied Chemical & Dye Corp., has available a completely revised 24-page brochure on emulsifiable A-C polyethylene. It contains data on many types of emulsions and emulsifiers. Circle No. **107.**

Tablet Counter

The Lakso Co., Inc., has an information sheet describing the new "48" Tablet counter. This machine counts and fills from 45 to 100 bottles of 100's/min., and is completely adjustable for tablet thickness. The unit is furnished on a portable table and uses a floor space measuring 27″ by 42″. Circle No. **108.**

Automatic Candy Wrapper

Supermatic Packaging Corp. has a new bulletin on the "Supermatic 5000." The machine automatically fold-wraps single square candies, groups them into packets of 5, 10, or 15, then wraps the packet with three-sided heat seals. This unit makes up to 400 single square wraps/min., using any type roll fed wrapping material. Circle No. **109.**

Coil Wrapping

Angier Corp. has a booklet describing its machinery and materials for spiral wrapping of coils of various products. Close-up illustrations reveal machine details, and product and material specifications are reviewed. Circle No. **110.**

Capping Equipment

Ball Brothers Co. has a four-page brochure on their new Grip-Twist vacuum cap and capping equipment. Caps are available in 38 to 89 m/m sizes. The equipment applies a hermetic seal yet is easily removed. A unique exhaust system removes all excessive steam, assuring excellent operator visibility. Circle No. **111.**

Wrapping, Bundling Service

Bronander Engineering & Research Corp. offers a descriptive leaflet outlining types of packaging that are available through this company's contract packaging service. This organization can design packages, and wrap rectangular packages, tubes, jars, bottles, irregular shapes, etc. Multiple wrapping, banding, and bundling are available also. Circle No. **112.**

Contour Packaging

Abbott Plastic Machine Corp. brochure describes the operation of the "Skin-Pak" machine in contour sealing non-food products with plastic film to cardboard packing. Specifications are given for nine different models. Circle No. **113.**

Military Specifications Reprint

Culligan Inc. offers MIL-P-116C, a 23-page reprint of the new military specifications on methods of preservation covering requirements for cleaning, preserving, and packaging various military items for protection against corrosion and physical damage. Changes concerning Method II packaging are outlined on a separate page. Circle No. **114.**

Overwrapping with Polyethylene

Bakelite Co., Div. of Union Carbide Corp., has a flexible packaging technical release No. 9, describing a sealing system for automatic overwrapping machines using polyethylene film. It gives detailed information on a sealing device for conventional automatic packaging machines. Circle No. **115.**

Edge Guiding Equipment

Fife Mfg. Co. has a 25-page catalog on their edge guiding equipment used in controlling webs in processing paper, film, foil, etc. Line drawings and photographs illustrate the various units and give technical data concerning a wide range of web guide power units, sensing heads, and assemblies for guiding at intermediate points. Circle No. **116.**

Polyethylene Combinations

Cotswold Fibres Inc. has released a sample book of some of their polyethylene film and base sheet combinations. Included are samples of poly-coated kraft and creped kraft, poly-coated cloth, poly-coated foil, and poly-coated non-woven fabrics. Circle No. **117.**

Canner Adhesives

H. B. Fuller Co. offers a new catalog describing adhesives for canners. It contains complete information including technical data on adhesives for case sealing, pick-up, lap end, spot labeling, and glass. Circle No. **118.**

Pressure Packaging

Crown Cork & Seal Co., Inc., Can Division, offers the third edition of its Pressure Packaging Catalog. This catalog contains complete information about the one-use pressurized can, including the types of products which may be so packaged, the names of suppliers of valves, loading equipment, and independent loading contractors. Circle No. **119.**

Styron Containers

Dow Chemical Co. has a new booklet, "Supplement to A Catalog of Packages," which illustrates a variety of Styron containers. Accompanying each illustration are the size, color, type of cover, suggested uses, and the name and address of the manufacturer. Circle No. **120.**

Gum Arabic Solutions

Morningstar, Nicol, Inc., offers laboratory reports A-820-G2 and A-820-G3, which

contain information data on the preparation of clear solutions from various types of gum arabic. These data sheets explain how maximum clarity and freedom from natural insoluble matter may be attained and also compare the use of powdered and granular forms of gum for solution manufacture in cases where complete filtration of the final product is part of the processing procedure. Circle No. **121.**

Heavy Goods Packaging

Hinde & Dauch has a 28-page booklet, "How to Ship Heavy Products in Corrugated Boxes," which offers a dozen illustrated case studies on the packaging of such heavy products as pumps, machine parts, motors, plastics, and nails. The booklet contains data on cost, weight, box assembly, product protection, ease of warehousing, and box storage. Circle No. **122.**

Cane Fiber Board

The Celotex Corp. offers an eight-page brochure which illustrates and describes the uses of its cane fiber board in many types of industrial packaging operations. Pertinent data regarding the properties of cane fiber board is also included. Circle No. **123.**

Acetate Film

Celanese Corp. of America has a new booklet which describes and pictures the various uses for both cast and extruded acetate films. Information concerning the thickness, size, color, finish, and fabrication of these films is included, as well as tables giving the mechanical properties of the films. Circle No. **124.**

Resin Adhesive

Paisley Products, Inc., has issued a laboratory report describing its polyvinyl acetate resin emulsion adhesive E-2131. The report describes the properties and method of application of the new adhesive, which is used cold, has a delivered viscosity of 2100 cps, and can be applied by roll, transfer, pickup, extrusion, or spray in high speed sealing equipment. Circle No. **125.**

Automation Guide

Allen Hollander Co., Inc., offers "Automation-Labelation", a guide which lists various types of pin feed labels according to stock, construction, and put-up, as well as surfaces that can be labeled, types of machines that can be used, and systems in which labelation is applicable. Circle No. **126.**

Twin Filler

Elgin Mfg. Co. has a data sheet giving information concerning its twin filler. This data sheet contains such specifications as the amount of floor space used, table height, maximum overall height, capacity of reservoir, shipping weight, etc. of this machine. Circle No. **127.**

Wrapping Machine

Carle & Montanari, Inc., offers a colorful folder which describes its CM-H56, an automatic high speed wrapping machine, used most effectively in the wrapping of small objects such as hard candy. Line drawings and photos accompany the explanatory material. Circle No. **128.**

Industrial Belting

Voss Belting Co. offers a new eight-page catalog which describes numerous types of specially designed belting for light and heavy conveying and power transmission, in such varieties as friction surface, ruff-top, cleated, vulcanized, or lapless endless, etc., and made of such materials as Neoprene, rubber, woven duck, and other fabrics and special coatings. Circle No. **129.**

Aerosol Equipment

JG Machine Works has a circular which describes two types of aerosol equipment. The circular illustrates and gives pertinent data regarding the Visue-Fill pressure burette and a heavy duty gage which can be adapted to fit most aerosol valves. Circle No. **130.**

Stamping Equipment

Olsenmark Corp. has a four-page circular illustrating its Kensol heavy-duty roll leaf stamping equipment. This circular pictures various stamping presses, feeding devices, and attachments for special applications and gives information concerning each piece of equipment illustrated. Circle No. **131.**

Foil Paper, Board

The Gummed Products Co. has a sample booklet that includes swatches of eleven of its laminated foil papers and boards. These are available in a wide range of standard and special colors with special types of gumming, including heat seal properties. Circle No. **132.**

Polyethylene Processing

U. S. Industrial Chemicals Co. offers a nine-page illustrated and bound file folder entitled, Polyethylene Processing Tips. Just reissued and brought up to date, this material includes information on the selection of polyethylene resins, as well as the effect of density, molecular weight distribution, and molecular weight on polyethylene properties. Details of twelve different U.S. I. Petrothene polyethylene resins are included. Circle No. **133.**

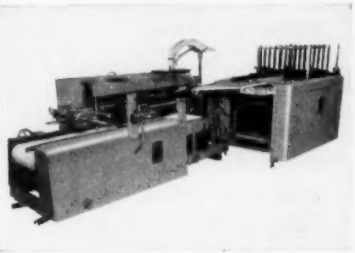
Cellophane Usage

American Viscose Corp. offers a 17" by 22" poster, printed in two colors, presenting rules for the proper storage and handling of cellophane. Designed for hanging in storage and wrapping areas of packaging line facilities, this chart has large type, simple language, and illustrations to make the rules easy to read and understand. Circle No. **134.**

NEW! High Speed

AUTOMATIC GLASS UNLOADER AND UNSCRAMBLER

Patents Applied For



● Self-timed by the cartons themselves with vacuum opening the flaps, lifting and depositing cartons onto the STYL-O-MATIC Walkie-Pushie Unscrambler where they are discharged in single line to filler. Completely adjustable for most standard sizes in 5 minutes.

Write today for full details

Dept. P

ISLAND EQUIPMENT CORP.

27-01 Bridge Plaza North, Long Island City 1, N. Y.

Circle No. 239

Stop sticking in heat sealers...

with SLIPICONE

SILICONE RELEASE AGENT

heat stable — easy-to-use

Here's a sure way to keep sticky materials from "gumming-up" packaging and labeling operations. Just apply *Slipicone* to your equipment. Films, waxes, adhesives and other packaging materials just won't stick to it!

Slipicone saves you money! Packaging equipment stays cleaner, more sanitary . . . cuts your maintenance costs. In heat-sealing, Slipicone prevents the pile-up, browning and ink smear that can ruin package appearance.

Spray or wipe it on: Available in 12 oz. aerosol bombs; 2 & 8 oz. tubes; 10 lb. cans. Try Slipicone now. Write for list of distributors.

first in silicones

ADDRESS DEPT. 5220

Dow Corning CORPORATION

MIDLAND, MICHIGAN

Branches: Atlanta • Boston • Chicago • Cleveland • Dallas • Detroit
Los Angeles • New York • Washington, D. C.

Photoelectric Equipment

Autotron, Inc., has a catalog supplement which includes descriptions of its new plug-in mounted photoelectric controls and light sources, new miniature phototube and light source heads with installation diagrams, one package photoelectric controls, impact actuated electronic controls, current surge actuated electronic controls, and combined photoelectric and timing controls. Circle No. **135.**

Slitters and Winders

The Samuel M. Langston Co. has issued Bulletin No. 220 illustrating and detailing economies and engineering features of its slitters and winders. The bulletin covers heavy duty construction, shear cut slitter features, rider roll control and drive, winder main drives, operating time savers, and back stands. Circle No. **136.**

Sheet Plastic Forming

Comet Industries offers an eight-page bulletin which describes its sheet plastic forming machines. Four different models are pictured and their specifications given. Circle No. **137.**

Accumulator And Bundler

Hayssen Mfg. Co. has an illustrated bulletin telling how savings can be effected by bundling unit packages together in film or paper wraps, eliminating the need for intermediate cartons or bags. Labeling and imprinting units are available for use with this equipment. Circle No. **138.**

Saran Base Lacquers

Pyroxylin Products, Inc., offers technical data on its Saran base lacquers, which can be used to attain improved grease resistance and water and gas impedence on many types of films and paper. Samples of various lacquers are also available. Circle No. **139.**

Polyethylene Coated Papers

Thilmany Pulp & Paper Co. have a kit that contains samples of several of the most popular grades of plain kraft and Tuf-Wet papers coated with black polyethylene. These papers give extra protection against weather and light rays because the black polyethylene absorbs ultra violet rays from the sun. Circle No. **140.**

Automatic Cartoning Machines

Bivans Corp. has a new brochure which describes two automatic cartoning machines, Model 50 Tuck-O-Mat and Model 54 Convey-O-Mat. These machines are illustrated and their specifications and operating information are also included in the brochure. Circle No. **141.**

Polyethylene Antioxidant

Monsanto Chemical Co. offers Technical Bulletin No. ODB-57-31 which gives complete data concerning its product Santonox, approved for use as an antioxidant in high-pressure polyethylene, including food grades. This bulletin includes charts and tables showing the specifications of Santonox and its performance characteristics in polyethylene. Circle No. **142.**

Pressure Sensitive Tapes

Chicago Gasket Co. has Technical Bulletin No. A-3E which gives detailed information concerning a new pressure sensitive self-stick Teflon adhesive tape. Also available is Technical Bulletin A-3C which describes Teflon sheet, tape, rod, and tubing and gives various specifications. Circle No. **143.**

Fibre Drums

Continental Can Co., Fibre Drum Div., offers an illustrated four-page bulletin giving specifications for "Stapak" fibre drums. Featuring sanitary interiors, low tare weight, metal tops and bottoms, and a convenient lug closure, these drums are useful for packaging a wide variety of products from powdered foods and chemicals to small machine parts. A complete table of specifications for 44 different drum sizes is included. Sizes range from 11" x 5" to 18½" x 30¼". Capacities range from 2 gals. to 35 gals. Circle No. **144.**

Filament Tapes

Minnesota Mining & Manufacturing Co. bulletin describes and lists physical properties of three different grades of Scotch filament tape. These tapes feature a new pressure-sensitive adhesive that is perfectly smooth and level, insuring complete contact with hand pressure. Tapes are reinforced with either rayon fibres or glass fibres, providing them with ample strength for heavy-duty packaging jobs. Circle No. **145.**

Aluminum Foil

Cochran Foil Co., Inc., has prepared a handsome, illustrated brochure entitled "Meet Cochran Foil". Since this company is a major supplier of aluminum foil and foil laminations to the packaging field, this booklet should be of interest to the users of this material. It relates the beginnings of this company and traces its growth to the present day, showing detailed pictures of rolling mill operations, laminating, and laboratory techniques employed by Cochran. Circle No. **146.**

Semi-Automatic Labeler

MRM Co., Inc., has an illustrated bulletin sheet that describes and gives specifications for the "uprite" semi-automatic labeling machine. Applying labels to containers in an upright position, this unit is hand-fed. It automatically labels and discharges the container. The machine is said to handle a wide variety of package and label shapes. Range of label sizes: From ¾" x 1" to 6" x 8". Range of container sizes: From fractional ounces to gallons. Circle No. **147.**

Transparent Vinyl Film

Clopay Corp., Plastic Films Division, offers an information and technical data bulletin describing Clopane, a clear transparent vinyl film. Available in 10 different thicknesses ranging from .00075" to .0100" this material prints well, is tough, can be heat or adhesive sealed, is moisture and crackproof, can be sewn or stapled. It is well adapted to the packaging of a wide variety of non-food products such as textiles, hardware, toys, notions, etc. This bulletin contains price sheets, a yield chart, and a table listing chemical and physical properties. Circle No. **148.**

Foil Lined Shipping Sacks

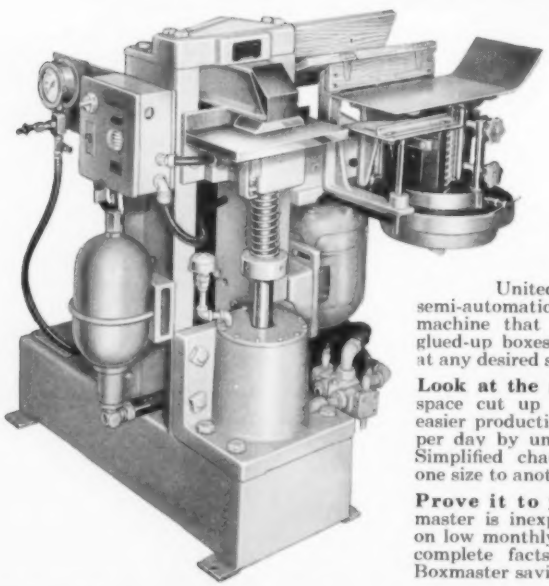
Hudson Pulp & Paper Corp. has published technical data Bulletin FW-101, which lists a description of company's Foil Wall shipping sacks. Supplied in sewn constructions, these sacks range from three to six plies of kraft paper, including the aluminum foil barrier. A special laminant provides a total surface bond and seals all foil pin holes. The laminant is nontoxic, has a low temperature crack point, and a high melt point. These sacks are adapted for use in packing organic, inorganic, and industrial chemicals, resins, pigments, bulk pharmaceuticals, foods, cleaning compounds, etc. Technical specifications for the five basic barrier constructions now in production are included. Circle No. **149.**

Multiple Glass Packaging

The Gardner Board and Carton Co. has a folder which describes the Glaspak machine that multiple-packs glass jars and bottles as well as cans, handling various styles and sizes. One person can operate two of these machines simultaneously. It packs, seals, and delivers glass containers in cartons at a rate of 20/min. and can be adjusted to handle two, three, and four unit cartons. Circle No. **150.**

New Savings on the Packaging Line...

BOXFORMING by BOXMASTER



United Boxmaster is a semi-automatic carton forming machine that produces sturdy, glued-up boxes from flat blanks at any desired spot in your plant.

Look at the savings: Storage space cut up to 92%; Faster, easier production — up to 3000 per day by unskilled operators; Simplified changeover — from one size to another in 60 seconds.

Prove it to yourself! Boxmaster is inexpensive, available on low monthly rental. Send for complete facts and figures on Boxmaster savings.

United *Packaging Department* **SHOE MACHINERY CORPORATION**

140 FEDERAL STREET, BOSTON 7, MASS.

Evaluation and testing of adhesives for transparent films

(Continued from Page 49)

mining the maximum and minimum bond strength of an individual seal.

c. *Bond strength.* A Suter tester was used to determine bond strength after storage at room conditions, 80% R.H.-72°F., 32°F. and 0°F.

d. *Shipping tests.* Bags fabricated from promising adhesives were subjected to loading and shipping tests to follow the adhesive performance under use conditions.

e. *Adhesive thickness.* A Bausch and Lomb comparator was used to determine final adhesive thickness.

The procedures outlined above were selected to provide a cross-section of the various phases of our adhesive testing at Chestnut Run and to illustrate the types of tests which are considered appropriate for various applications.

In summary, the reader will have observed the practical approach to adhesive testing as we carry out tests involving commercial adhesives and our products. Not all combinations of these materials could be discussed in the scope of this paper. We are continually searching for improved techniques and always welcome suggestions to assist in this activity.

We wish to express our appreciation for the excellent cooperation and assistance which has always been extended to us by the members of the adhesive industry. The author wishes to acknowledge the contributions of many colleagues who have contributed thought and effort to these adhesive evaluations.

CLASSIFIED

HELP WANTED

Engineer-Editor Wanted — Engineering, chemical, or other technical background with experience in packaging. Writing ability helpful. Interesting future with our own rapidly growing company. Send education and experience resume, in confidence, to R. Bruce Holmgren, Editor, Package Engineering, 1791 West Howard St., Chicago 26, Ill.

Index of Advertisers

A-B-C Packaging Machine Corp.	42
American Instrument Co.	14
Bakelite Company, Div. of Union Carbide Corp.	12
Bradley Container Corporation	15
Brown Filling Machine Co., Inc.	48
The Cleveland Container Co.	46
Crosset Paper Mills	13
Crown Cork & Seal Co., Inc.	9
Dobeckmun Company	5
Dow Corning Corporation	41, 55
J. L. Ferguson Co.	16
The Filler Machine Co., Inc.	43
Food Machinery and Chemical Corp.	inside back cover
Gaylord Container Corp., Div. Crown Zellerbach Corp.	51
The Goodyear Tire & Rubber Co.	1
Hayssen Manufacturing Co.	38
Hinde & Dauch	20
Hope Machine Company	43
Injection Molders Supply Company	49
Island Equipment Corp.	55
R. A. Jones & Co., Inc.	outside back cover
Kimberly-Clark Corp.	10-11
Markem Machine Co.	52
Marsh Stencil Machine Co.	42
Minneosta Mining & Mfg. Co.	8
Monsanto Chemical Company	18
B. F. Perkins & Son, Inc.	47
The Pfaudler Co.	45
Pitney-Bowes, Inc.	17
Plax Corporation	34, 35
Post Machinery Company	52
Pyroxylin Products, Inc.	43
Riegel Paper Corporation	31
Scandia Manufacturing Co.	inside front cover
Semet-Solvay Petrochemical Div., Allied Chemical & Dye Corp.	7
Union Bag-Camp Paper Corp.	53
Union Carbide Corp., Bakelite Div.	12
United Shoe Machinery Corp.	56
Waxed Paper Merchandising Council, Inc.	19
Weber Addressing Machine Co., Inc.	53
Western Waxide Specialty Packaging Div., Crown Zellerbach Corp.	3
A. H. Wirz Inc.	6
Wrap-Ade Machine Co., Inc.	47

FOR SALE

For Sale — Packaging machine, Battle Creek Model BT30 and Bond M L Dual Filler. Fills, seals folding boxes, both bottom and top. Continuous flow principle. Quickly convertible. Wide range of boxes up to 10 inches in height, 30-40 per minute. Price new machine $15,120.00; this used one $5000.00. Reply to W. J. Wittekind Company, 1041 Richmond Street, Cincinnati 3, Ohio.

For Sale — Packaging machine, Wrapmaster Model J-6, seals cellophane wraps, never used. Original cost $900.00. Sacrifice. Reply to: Carnival Creations, Inc., 2554 E. 18th Street, Brooklyn 35, New York. Attention: Herbert Margolis.

For Sale — One used Battle Creek Packaging machine, Model 47, quickly adjustable for large packages with belt intake; one used National Drying Machine Co. continuous apron conveyor type dryer, left hand, with hydrolic oscillating feeder conveyor and enclosure for discharge end; one used Triangle Model G2C, serial #9155, electric Tri-Pak gross weigher equipped with twin bag holding clamps, foot pedal operated to handle two pound size bag. Reply to: Reading Anthracite Company, Purchasing Department, 200 Mahantonga Street, Pottsville, Pa.

For Sale — One set of Horizontal Perimeter Wire Stitching Machines applicable to wire stitching of plywood crates or corrugated cartons to wooden skids. Equipment range 25" min. x 40" max. width — 72" max. height — length unlimited. Electric data 208V-3PH-60 Cy. J. M. Heimerl, Fedders-Quigan Corp., 52-01 Flushing Avenue, Maspeth 78, New York.

What we think

Columbia University's announced intention of dropping its courses in package engineering strikes us as being a distinctly backward step. If any changes in these courses are in order, they should be expanded rather than curtailed. We need more packaging education, not less.

We understand that the university bases its decision to drop the courses on these four points: (1) It has no fulltime faculty members with adequate knowledge and practical experience to teach packaging; (2) its major emphasis is on basic subjects leading to an academic degree, rather than on courses for adult education; (3) textbooks on packaging comparable to those available in mechanical engineering and similar fields are not yet extant, and (4) examinations in packaging are hard to administer fairly because of varying standards and shades of opinion in the packaging field.

The crux of the decision seems to be that the university wishes to concentrate on fulltime academic education leading to degrees and feels that parttime or evening courses such as those in package engineering have no part in such a program. Before examining this idea, however, we might review the arguments offered by the university in support of its decision to drop the courses.

Neither Columbia nor any other university has anything like a complement of fulltime faculty members qualified in packaging. Even Michigan State University with its pioneering four-year course in packaging is still developing a fulltime faculty trained in packaging. Meanwhile, it behooves us to use the best currently available packaging instruction — including parttime teachers recruited from the ranks of industry.

We are keenly aware of the high academic standards at Columbia. We appreciate its desire to enhance the quality of its academic program. At the same time, we think every university has a certain duty to its community, its state, or whatever area it serves. Without presuming to suggest just how widely a university can disperse its forces without diluting its efforts, we think it has a distinct obligation to assist in meeting the specialized educational needs of its community.

Similarly, the march of packaging education cannot stand still pending the development of articulately prepared textbooks done in the best academic manner. In time we shall have all of these. Whatever the inadequacies of the lecture notes of the men presenting the evening courses, it appears that no one else has a better alternative to their efforts.

The fact that examinations in packaging are difficult to administer is immaterial. The most venerated of classic subjects rests on a great deal that lies in the realm of opinion rather than fact. All any professor does when grading a student is to make his best guess. Who can say conclusively that one deserves a grade of 87 in English literature while another merits only 79? The distinction between a B and B— is not a line, but a shadow.

The core of our concern regarding Columbia is that it seems to think courses leading to academic degrees and those conducted for adult education are mutually exclusive. This is not so. We think it a serious mistake to graduate a student in engineering and industrial management without some exposure to the subtleties of technical and operational packaging. Similarly, we question the implication that those teaching the packaging courses are less qualified in their subjects (than fulltime faculty members would be) simply because they are parttime teachers.

These men are not hacks. They are leaders in their fields. We know many of the lecturers personally and are acquainted with the others by their professional stature and their reputations in their own fields. That some 24 of these men take time from crowded schedules to conduct the courses is a tribute both to Columbia and to the faith these men have in the future of packaging.

Obviously, there are extreme limitations in any kind of lecture course. We realize that the chief instructional medium is the flow of information from the tongues of the lecturers to the ears of the students. We are not prepared to say just how thoroughly they absorb and retain this material. But the fact remains that nearly 500 people have taken these courses. Some companies send men year after year. Many students pay their own tuition.

Still another phase of the problem is that very few, if any, of these 500 students could have attended a four-year course in packaging at Michigan State or any place else — even Columbia. The need for trained packaging people is so great that we must make the most of the resources now at hand.

It would seem that courses and schedules could be worked out so that the people employed in packaging can secure this advanced education. At the same time, the fulltime students working toward degrees should have some of this same caliber of industry-oriented education.

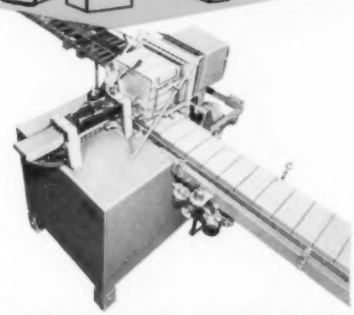
Bruce Hoingren

Editor

fmc presents 2 great Casing Machines

For Continuous Automatic High-Speed Line Operations

SURE-WAY PACKAGE CASER*



Requiring only a single operator, the versatile "Sure-Way" brings important economies wherever it replaces manual or semi-automatic package casing operations.

Man-hours alone can be reduced up to 70 and 80%. Even with its high capacity—up to 240 packages per minute—the "Sure-Way" is near-human in gentleness to packages, overwraps and labels.

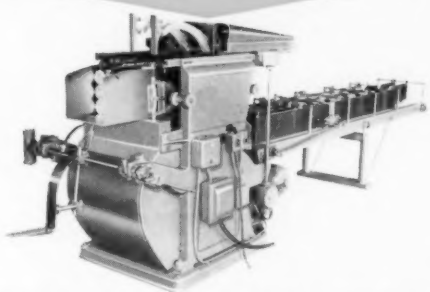
It's compact, too—in some installations space requirements are cut as much as 80%. Other features include:

• Complete safety through automatic controls. • Gentle compressed air used for actuation. • Broad flexibility of loading patterns. • Handles variety of case and package sizes. • Loads top or end opening cases. • Small power requirements—one ⅓ HP motor drives both feed and discharge conveyors. • Moderate capital investment. • Low maintenance costs.

Typical products handled include cosmetics, cereals, detergents, bar soap, sugar, cake mixes, small packaged machine parts, oleomargarine, cigar boxes, frozen foods, etc.

*Exclusive Distributors: Food Machinery and Chemical Corporation

fmc NON-SHOCK CAN CASER



Smooth and gentle as its name, the FMC "Non-Shock" caser places cans into cases completely free of damaging impact to cans, labels or product.

Speeds up to 1200 cases per hour can be attained, limited only by the speed of the single operator. Automatic in operation, the filled case lowerator arm and tiered can pusher arms are activated as empty carton is slipped over loading chute.

Cans enter machine in *upright* position, move smoothly down woven wire belt. There's no rolling, no seam-to-seam impact nor seam-splitting action of steep gravity-roll contact.

Compact and flexible, FMC "Non-Shock" Casers are ruggedly built for long life, handle specific can sizes and certain combinations from 202 x 308 packed 6 x 8, to 603 x 700 packed 2 x 3.

Whatever your problem—can labeling, casing, sealing—FMC packaging engineers welcome the opportunity of reviewing them with you. If your product is packaged in a box, carton, can, or other rigid or semi-rigid container, or if the product itself takes a rigid shape, chances are you can case it better for less with FMC precision-engineered equipment. Send full details for prompt reply. No obligation, of course.

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

The outward sign of inward value

FOOD MACHINERY AND CHEMICAL CORPORATION

Canning Machinery Division

General Sales Offices:
WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

For more information circle No. 242 on Reader Service Card

JONES

new thermo CARTONING

Actual on-the-line performance of the JONES CMTC (Constant Motion Thermo Cartoner) demonstrates its advantages.

Better Package

Protection superior to carton-plus-overwrap. Guaranteed full tear-fiber seal, withstands -40° temperature, also plate and blast freezing; carton stock gives superior printing results. Patterned adhesive application – (1) uses 50% less adhesive; (2) no product contamination.

Lower Costs

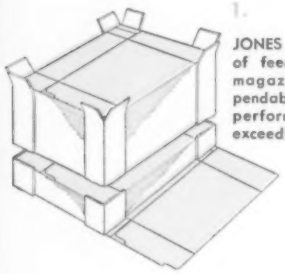
No overwrap – no wrapping machine – reduced material, floor space and labor costs; 1-piece package reduces handling and inventory; higher speed – conservative guarantee of 265 per minute on 5" pies, 160 per minute on TV Dinners or 8" pies – 2 to 3 times the speed of available equipment now in operation.

Package and Load Control

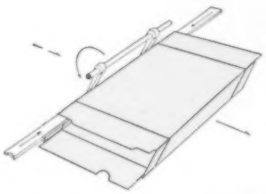
Continuous, positive, smooth control of package and load from carton magazine through refrigerated delivery.

Flexibility

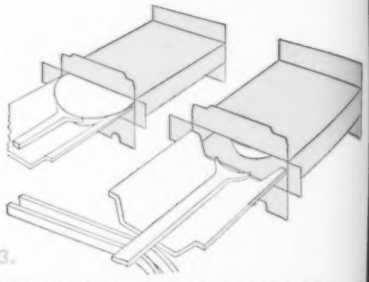
Handles loads from 4" to 8" pie size on one machine, other products in similar size proportions; simple change-over.



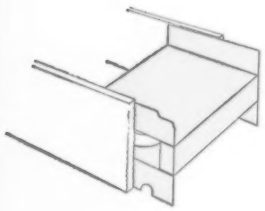
1. JONES standard method of feeding carton from magazine—proved dependable by years of performance at speeds exceeding 400 per minute.



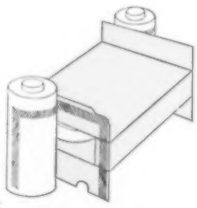
2. Cartons opened by double knife; fingers over-break carton past 90° angle to assure rectangular form.



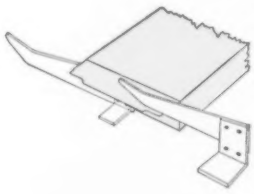
3. Carton held in true rectangular form by leading and trailing lugs while load is smoothly inserted from synchronized constant motion product conveyor.



4. Thermal dewaxing of sealing surface permits penetration of thermo-adhesive into carton fibers.



5. JONES intaglio thermo-applicator provides clean, dependable, controlled application of thermo-adhesive on sealing surfaces only.



6. Closed flaps held in contact through refrigeration section—firmly setting the thermo-seal.

See JONES Cartoning Machines operating in production service; detailed specifications and operating data on JONES CMTC furnished promptly; address main office.

For more information circle No. 243 on Reader Service Card

R. A. JONES & CO., INC.

P. O. BOX 485, CINCINNATI, OHIO

Cartoners — Case Packers — Soap Presses

rol of
gazine

ize on
imilar
er.

ng and
d from
or.

Ma-
oduc-
peci-
data
shed
ffice.

85,
OHIO